ISSUE 41 | MAY 2013 | WWW.BLENDERART.ORG

BLENDER LEARNING MADE EASY!

blenderart

Imagine the Possibilities!

Letting Cycles Do The Work

Making Of Katie

Making Of Red Fox

Red Fox - by Lucas Falcao

blenderart

EDITOR - GauravNawani
MANAGER/EDITOR - SandraGilbert
WEBSITE - NamPham
DESIGN - GauravNawani

PROOFERS
Charlie Shene
Fade Shayol *
Scott Hill
Brian C. Treacy
Bruce Westfall
Daniel Hand
Daniel Mate
Henriël Veldtmann
Joshua Leung
Joshua Scotton
Kevin Braun
Mark Warren *
Noah Summers
Patrick O Donnell
Phillip Ryal
Wade Bick *

WRITERS
Sean Kennedy
Marco Lorenzetti
Lucas Falcao
Martin Stern
Jürgen Stern
Paul Caggegi
Osman Enrique Acasio
Enrique Sahagún
Alban Denoyel
Sorin Vinatoru

COVERART
Red Fox - by Lucas Falcao

DISCLAIMER

Blenderart.org does not take any responsibility either expressed or implied for the material and its nature or accuracy of the information which is published in this PDF magazine. All the materials presented in this PDF magazine have been produced with the expressed permission of their respective authors/owners. Blenderart.org and the contributors disclaim all warranties, expressed or implied, including, but not limited to implied warranties of merchantability or fitness for a particular purpose. All images and materials present in this document are printed/re-printed with expressed permission from the authors and or writers. The contents responsibility lies completely with the contributing writer or the author of the article.

This PDF magazine is archived and available from the blenderart.org website. The blenderart magazine is made available under Creative Commons 'Attribution-NoDerivs 2.5' license.

COPYRIGHT© 2005-2012 'Blenderart Magazine', 'blenderart' and Blenderart logo are copyright of Gaurav Nawani. 'Izzy' and 'Izzy logo' are copyright Sandra Gilbert. All products and company names featured in the publication are trademark or registered trademarks of their respective owners.

EDITORIAL

Sandra Gilbert
Manager/Editor

> *Blender's power and speed of development allows us to explore those possibilities to our heart's content.*

One of the coolest things about being an artist is our ability to imagine seemingly infinite numbers of cool new things we could be doing.

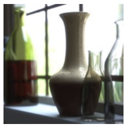
That imagination coupled with Blender's power and speed of development allows us to explore those possibilities to our heart's content. Which of course makes us very happy little artists.

That being said, the sheer diversity of projects attempted and successfully completed using Blender never ceases to amaze me. While most of us start out with traditional still images and animations, many Blender users have branched out into exciting endeavors including scientific research and visualization, virtual gaming/learning environments, product design and so much more.

I was once told that if you can conceive it, you can achieve it and with Blender that is being proven on a daily basis. The only limits are those we impose on ourselves, so it is time to let loose the gates to our imaginations and "Imagine the Possibilities".

So settle in for a delightful experience as talented members of our community share their projects and start imagining some new possibilities for yourself.

CONTENTS

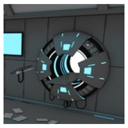


Letting Cycles Do The Work 4

Making Of Katie 8

Making Of Red Fox 12

Master Of Puppets 14



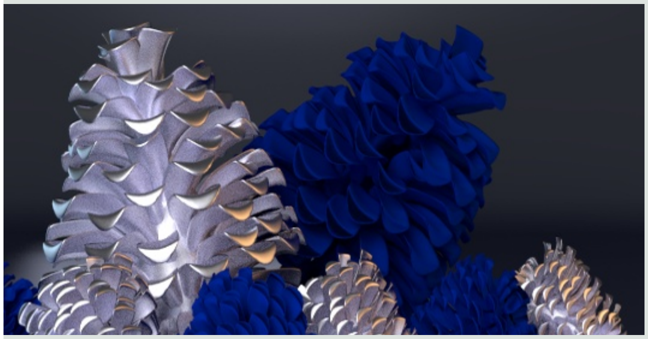
Blender For Comic Illustrations 19

Making Of Trophy 21

IZZY SPEAKS

the truth and nothing but the truth

THOUGHTS ON TUTORIALS



When you first start using Blender, tutorials are a very helpful way to learn how things are done. By completing various easy projects you learn how the tools work. As you work through progressively more advanced tutorials, you learn more advanced skills and techniques.

Often you can continue following tutorials and learning new skills indefinitely. Especially considering how quickly Blender grows and gains new features and tools. It seems there is always a new tutorial that either covers a new technique or a project that hasn't been seen before.

Admittedly, for years I did exactly that. New tutorials would be written or released as a video and there I would be following right along with the tutorial. But over the last several years I have found myself actually doing fewer and fewer tutorials. Don't get me wrong, I still watch and read an amazing number of tutorials, often on a daily basis. I just no longer actually do the tutorials.

So why do I still watch and read so many tutorials then?

Because I have grown to the point where I have a different perspective on tutorials. Most (not all) tutorials actually cover things I could figure out on my own, so more often than not I am more interested in the workflow of the person who created the tutorial than the actual tutorial itself. By watching and seeing how someone else approaches a task in Blender, I find myself thinking of things in a different way. Often coming up with things that had little or nothing to do with the actual tutorial. But even with tutorials where the subject matter is something totally new to me, my mind still wanders off and does odd things with the information presented.

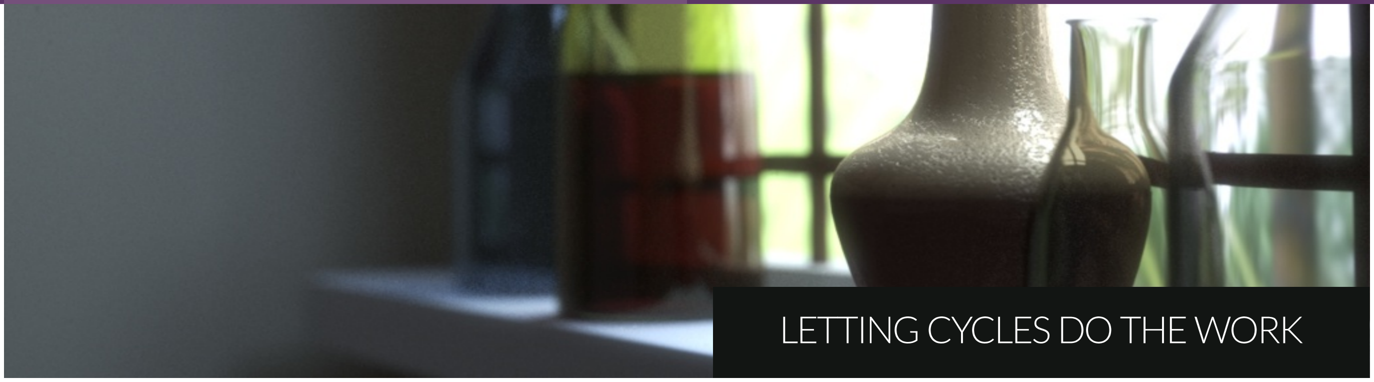
Case in point, a few months ago, I was watching Josh Maule's tutorial on “Creating Uniformity with Particles in Blender”. I hadn't gotten very far into the tutorial when it dawned on me that this was a brilliant way to create a pine cone. In case you haven't watched the tutorial, Josh covers creating corn on the cob and a cactus, yep and my mind went straight to pine cones. Now pine cones don't look very much corn cobs or cacti, so following the tutorial exactly wouldn't have been much help.

What the tutorial did do, was show me how I could use particles to create a natural random look for my little pine cone “wings”, while maintaining the ordered symmetry that pine cones are famous for. While it still took a bit of experimentation and tweaking, in the end I had a much better result than I had gotten using arrays. Yay for me! And yay for Josh's tutorial.

So while following tutorials exactly can teach you many things in the beginning, As your skills progress I suggest using tutorials as more of a jumping off point for your own projects and exploration. Find new ways to use the information presented. You never know what you can achieve unless you try ●

MAKING OF

Exploring blenderart and blenderheads



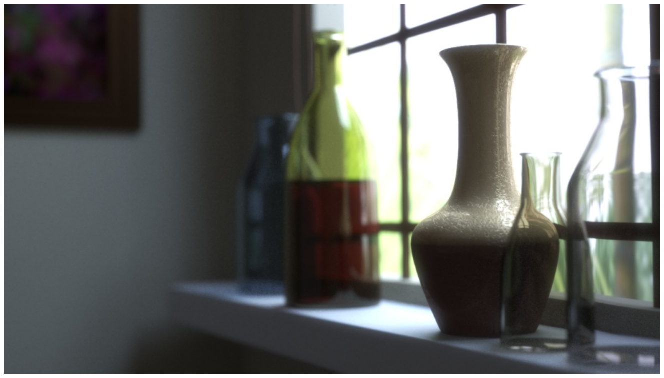
LETTING CYCLES DO THE WORK

Sean Kennedy

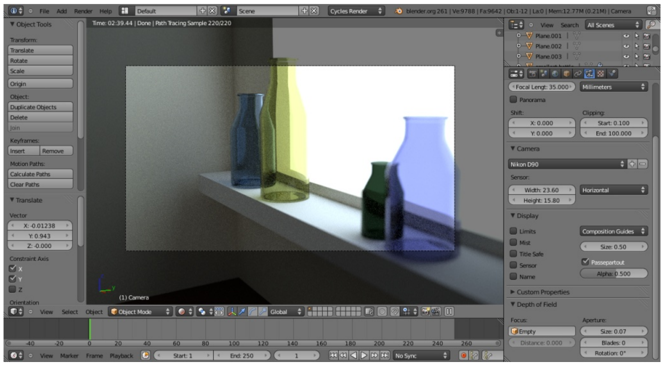
Contributing Author

When Cycles first showed up in Blender, like everyone else, I began experimenting with it. I started with very simple scenes so I could learn slowly and build up to more complex things. I learned that no matter how simple a scene was, Cycles managed to make it look pretty spectacular!

Here's a breakdown of a few of the scenes that turned out particularly well. These scenes (perhaps excluding the alien) have nothing difficult in them. No detailed modeling at all, just very basic stuff. Using some nice lighting, Cycles did all the work in making these shots look better than I thought they would when I started them.

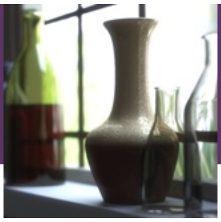


This first scene is some bottles lined up on a window sill. I was pretty blown away with how nice the glass looked in Cycles, so I did a Google search for dramatic images of bottles in sunlight. I quickly modeled a few very basic bottles from cylinders and, using the glass shader, made them different colors. I arranged them on a window sill made of a simple box in a room made from a couple of planes and applied an off-white diffuse shader to the room. I put an emission plane directly outside the window and left that as the sole light source in the scene.



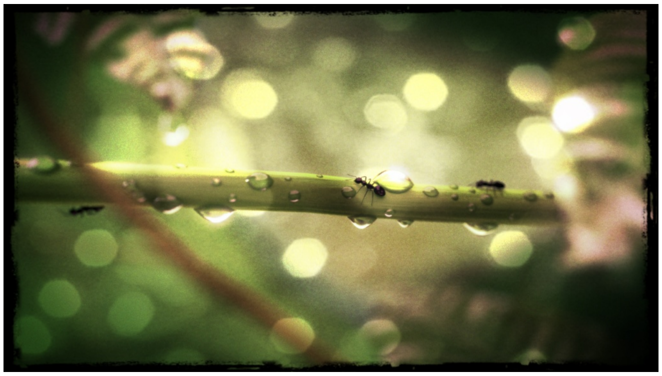
Once I placed the camera and began experimenting with the depth of field, I changed the emission plane outside the window from a basic plane emitting a white light to a photo of a park. I still left it as an emitter, and I loved the way it changed the colors of the defocused light coming through the window. It also gave the bottles something to reflect.

Here's a wireframe of the final image, where you can see it truly is the most basic of scenes. The only part of the image that took any significant amount of time was setting up the gradient shader on the one bottle that isn't glass, and even that isn't very complex.



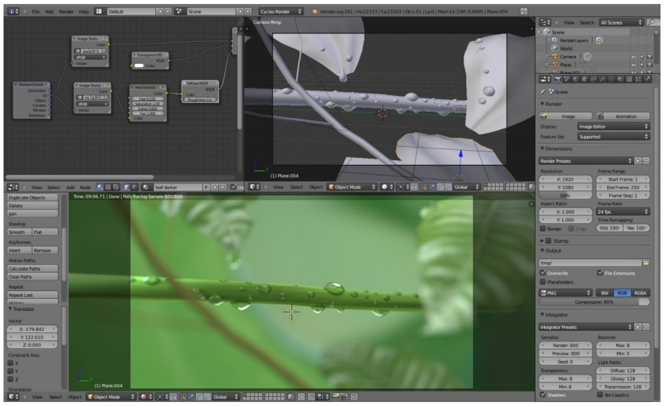
Letting Cycles Do The Work

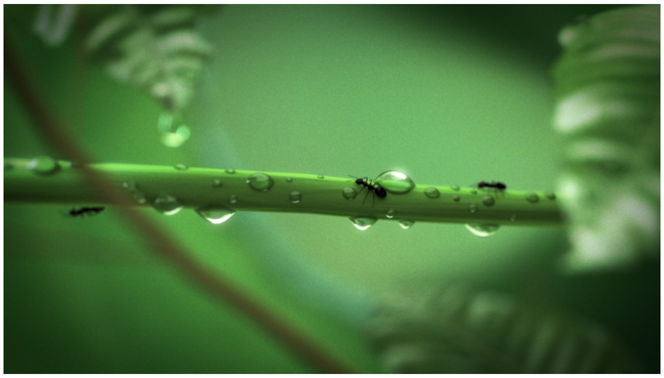
This next image is a macro shot of an ant crawling along a plant. In this scene, I was learning how to implement HDR lighting in Cycles, which, again, turned out to be shockingly easy and looks amazingly good.



The HDR was a free one I found online of an outdoor scene, and once most of the models were in place, I simply rotated it around until I found an angle where the lighting looked great. There's a large white emission plane above the entire scene, to get that nice white reflection on all the water droplets, and off to the left of the scene, I set up a light blue emission plane pointed right down the main plant stem. This gave a tiny bit of blue color to the stem, droplets, and the ants, which gives an impression of some sky color bouncing around in the forest.

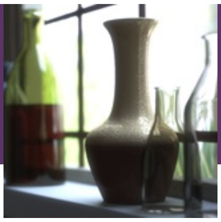
In this screenshot, you can see the very basic geometry making up the scene. A few bent cylinders for plants, a leaf I quickly modeled and duplicated, and some water droplets. The water droplets were all based off of a sphere that I tapered at both ends. As I placed it around the scene, I scaled it, and for the ones hanging underneath the plant, I stretched them downwards a bit so they'd look as if gravity was about to pull them off the stem. The leaf has a photo with an alpha channel mapped onto it.



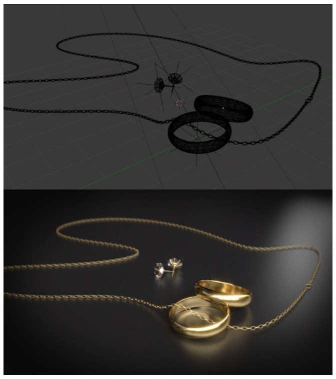


This image is the ant macro render directly out of Blender. I applied a slight bit of glow using the compositor. The color variation, vignette, defocus bokeh, and film grain in the final image come from pixlr.com, one of those web-based image programs that adds a few filters to your photos before you share them. I ran it through that just for fun.

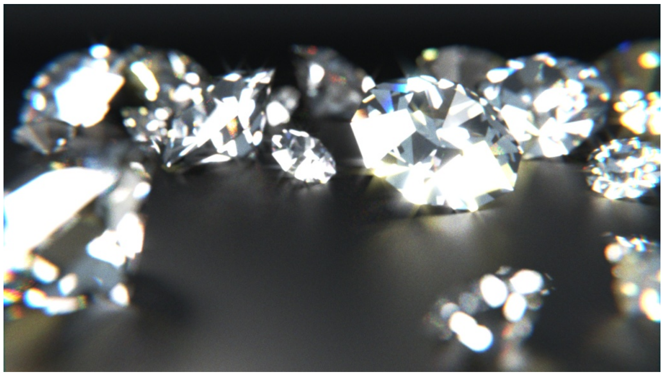
This jewelry I created after learning a technique for creating a diamond shader. Again, it's the most basic geometry I could get away with. The rings are



squashed torus objects, the chain a simple torus link following a curve, and the earrings were created using the gemstone extra objects add-on.



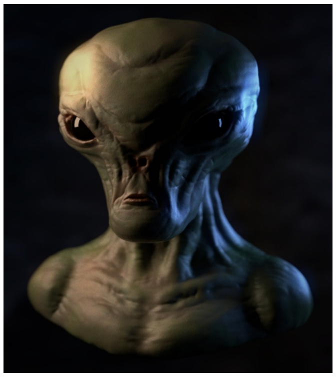
This diamond image was my first test with the diamond shader, but it wasn't interesting enough, which is why I created the simple jewelry in the previous image. The shader setup is so unbelievably easy. It builds off the idea that in the computer, the color white is created by adding together 100% red, 100% green, and 100% blue.

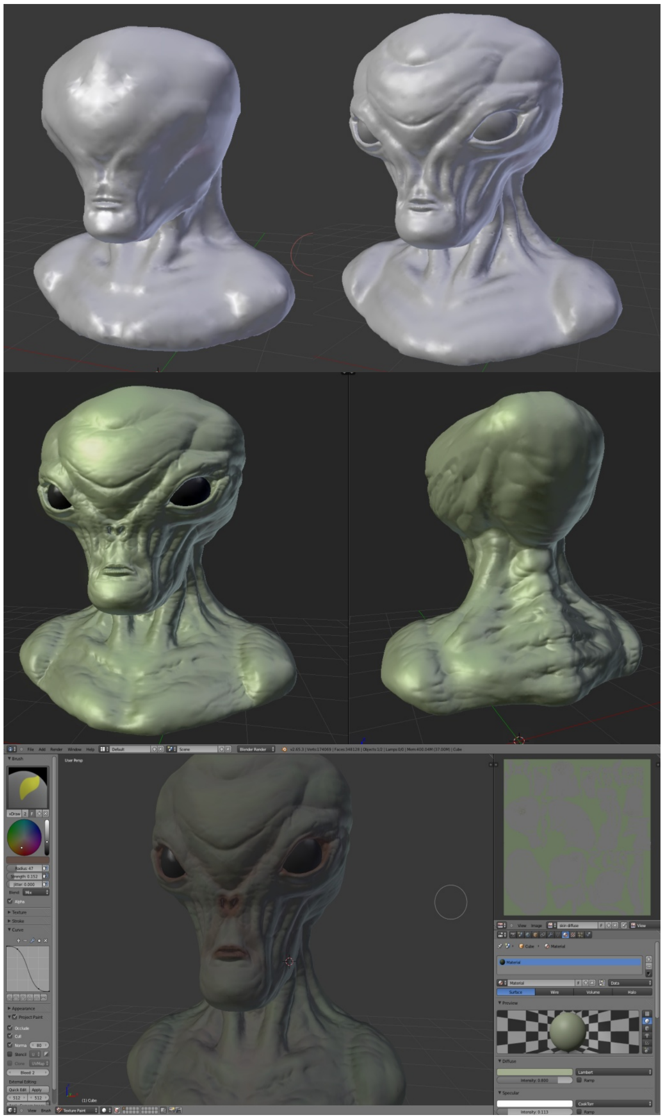


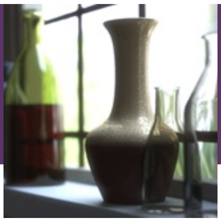
The shader should be clear and have refraction like glass, so you simply add together three glass shaders - one red, one green, and one blue. This creates clear glass. The trick is to slightly shift the IOR (index of refraction) for each glass shader, so all three are different. In this instance, I made the red 2.45, the green 2.46, and the blue 2.47. This makes the light bend differently in each color as it goes through the object, creating the colorful bling of a diamond.

Now, after seeing how the shader is made, you can see how it really adds something to the earrings in the jewelry image.

The last image I'd like to show is this alien sculpture. While the sculpting on it is more complex than most of the other modeling I've shown here, the lighting and rendering are just as simple.







Letting Cycles Do The Work

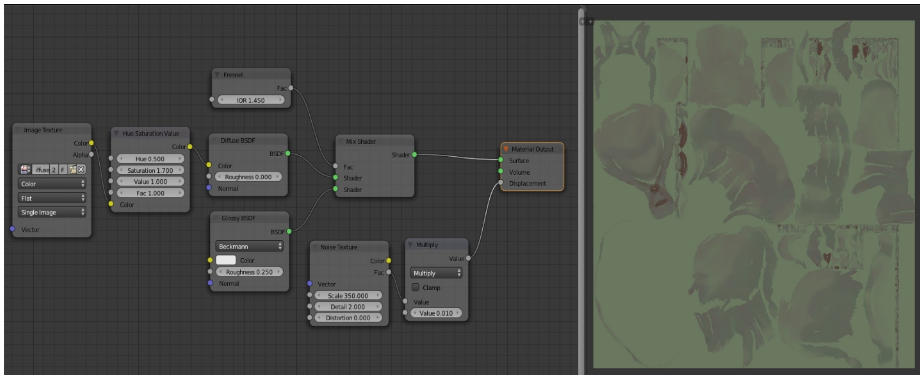


Image Texture
Color
Flat
Single Image

Hue Saturation Value
Hue 0.500
Saturation 1.700
Value 1.000
Fac 1.000

Fresnel
IOR 1.450

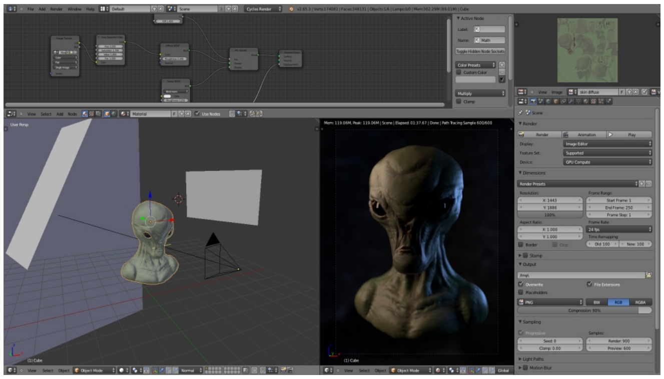
Diffuse BSDF
Roughness 0.000

Glossy BSDF
Beckmann
Roughness 0.250

Noise Texture
Scale 350.000
Detail 2.000
Distortion 0.000

Multiply
Multiply
☐ Clamp
Value 0.010

These screenshots show the creation and texture painting of the model. I used dynamic topology to sculpt it, which is another one of those amazing Blender accomplishments. Not only does dynamic topology allow complete creative freedom while sculpting, it's just plain fun.



After sculpting it, which only took a couple hours, I unwrapped it using smart project, so it was completely automatic. Then I switched over to texture paint mode, applied an new empty image to it and got busy painting. It's a very simple paint job, too. A base green color, some slight darkening in the cavities, and some reddish tinting around the eyes, mouth, and nose.

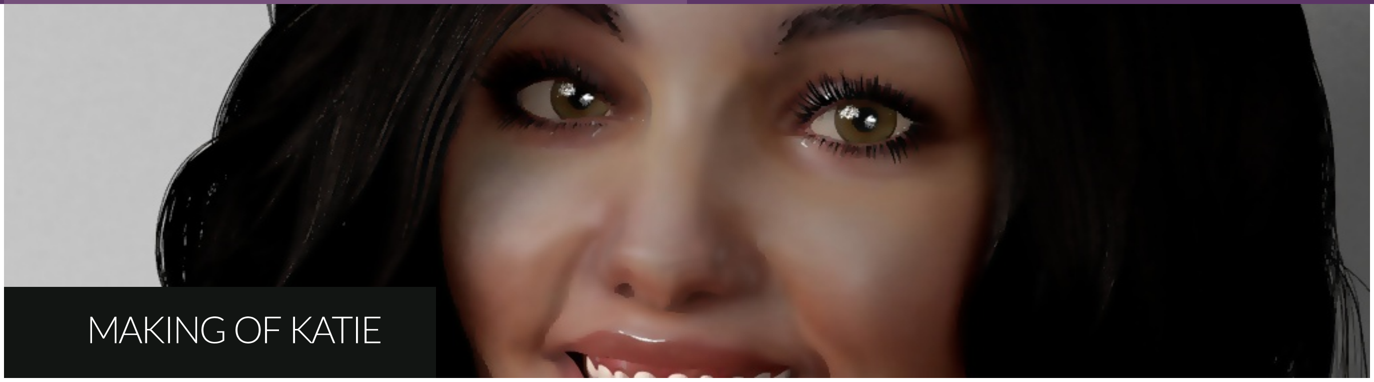
In this final screenshot, you can see the scene setup. I threw in a background plane with a grungy texture on it, just so there wouldn't be a solid color in the background. There's only two lights in the scene, the planes on each side of the model. One is a blue rim light, the other a yellow fill light.

The skin shader is mix of a diffuse and a glossy shader, with the painted skin map plugged into the color input of the diffuse. The glossy shader I left white. Into the factor input of the mix shader, I put a fresnel, leaving it at the default setting. This just helped apply the glossiness in a realistic way. The only other thing I added to the skin shader was a very small bump map, which was just a noise texture applied to the entire thing. I only added that so the skin wasn't completely smooth everywhere.

I hope taking a look at how I set up these simple yet realistic scenes helps you with some of your scenes. Cycles is really an amazing tool, and it's really quite simple to learn to use it to your advantage when trying to render a great looking scene ●

Sean Kennedy

Sean Kennedy is a lead compositor at Rhythm & Hues Studios in Los Angeles, and has been using Blender for two years. Over at blenderartists.org, he goes by the screen name “*hype*”.



MAKING OF KATIE

Marco Lorenzetti
Contributing Author

My name is Marco Lorenzetti. I'm Italian and I love Blender, its community and all its initiatives. Since I use Blender my work has improved a lot and my dream is that my passion becomes a real work. What I like a lot about computer graphics is making credible human and artistic characters. So I often create new models based on the characters that I love.

CYCLES NEW POSSIBILITIES

The model I want to illustrate the making of process with is one based on the beauty of Katie Melua. This was my first model with Blender made with version 2.49. Now with Blender 2.66 and the new capabilities of Cycles including the strand render I thought that new horizons could be opened especially for the design of characters and I wanted to turn back to my model.

I thought to use Cycles to render it and when I set the first materials and the lights, I was amazed that the image took on realism mainly due to how light interacted with the model in a dynamic way. Initially I searched for many references of Katie especially at high resolutions so they can also be used to bake the texture, then I choose a pose and I tried to achieve it.

THE SCULPTING PROCESS

I thought I'd recreate again the work of sculpting to achieve that pose. I have kept very well the features of Katie and I paid a lot of attention to the shape of the face, nose, chin, eyes and ears.(fig.1) I added the multires, I divided the model up to level 3 and with the crease brush I drew the lines around the lips,(fig.2) those folds that characterize her smile. For the nose I have been paying attention to the lines of the tip and the flat parts and I tried to recreate these in the sculpting.

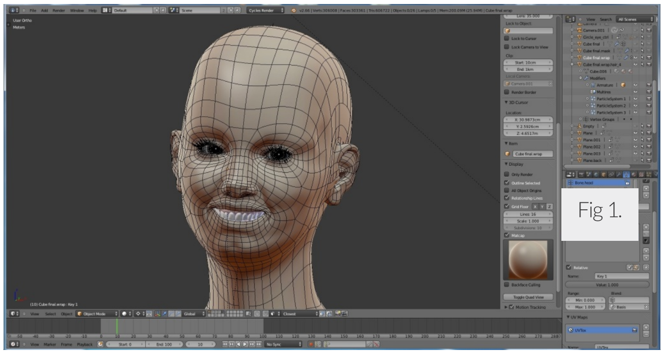


Fig 1.

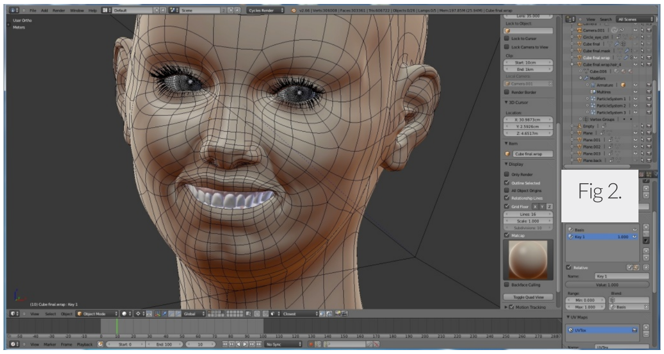


Fig 2.

Making Of Katie

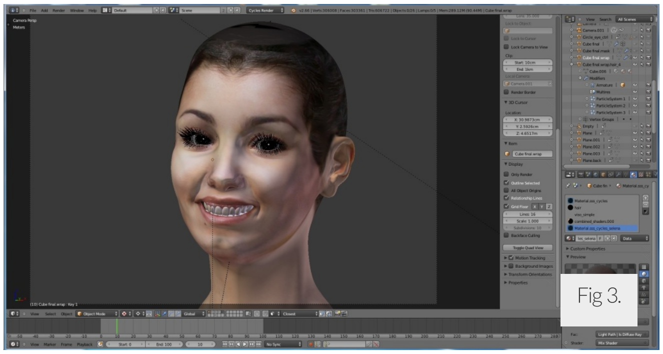


Fig 3.

Then I realized the area around the eyes creating that line on the upper eyelid is very characteristic.(fig.3). Then I worked on the chin with its dimple and ears, making them as similar as possible. I have also created a shape key to achieve her smile.(fig.4) A very useful tool is the "connected" option of proportional editing to open her lips. Then I created the teeth and even here I paid a lot of attention to their shape and proportions. Then I made a simple armature with controls for the eyes and I posed the head.

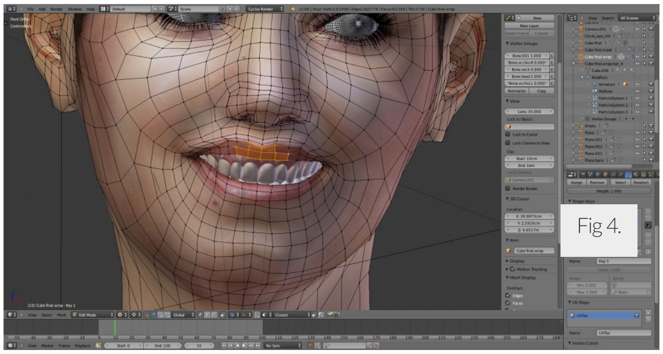


Fig 4.

THE MATERIALS

I have defined the materials with cycles. Initially I had some difficulties but then I realized how easy and powerful was to create different and realistic materials and also for complex materials such as the skin. What impressed me so much was the realism of the eyes, the quality of the specularity, reflections and shadows and the physical attributes of light.(fig.4b)

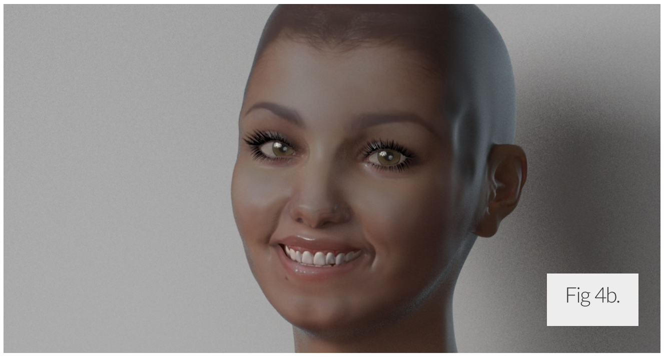


Fig 4b.

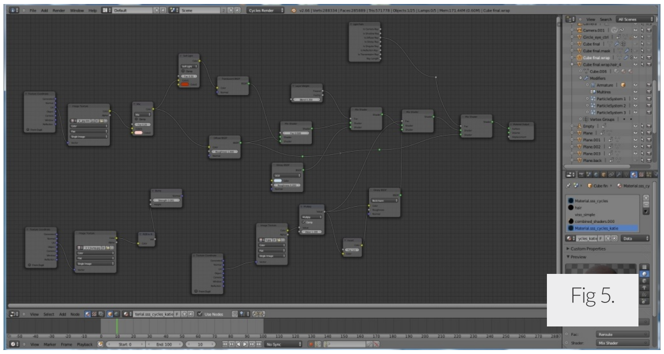


Fig 5.

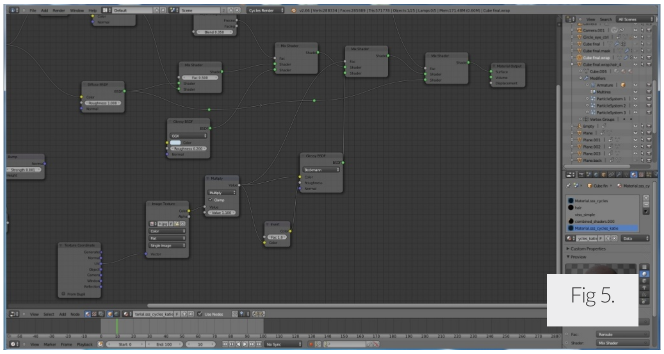


Fig 5.

For the skin I created a material trying to simulate the effect of SSS. I used a BSFD Diffuse mixed with a translucent BSDF with a color map mixed with a red color using a soft light node.(fig.5) I used two glossy BSFD to create two types of reflection: a softer and less intense reflection and a sharper one using a map to realize the wetter parts of the lips and around the eyes.(fig.6) I've made the color maps with projection mapping followed by baking on the model with unwrapped UV. The lighting is incredibly powerful and I tried to achieve something similar to photography.

Making Of Katie

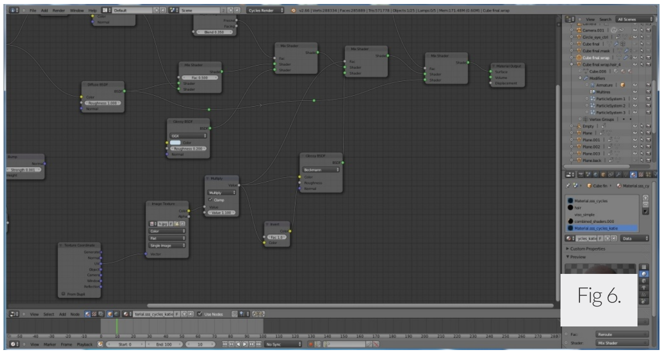


Fig 6.

THE HAIR

Finally I thought to make the hair with the fantastic new function of cycles. I have created various particles and combed the hair. (fig_8) I turned on the children and I applied the curl style. I used a shape around the 0.7 (panel curl) to ensure that the hair is smooth at the root up to a certain length and then turns into a curl.(fig.7)

I have quickly created a hairstyle just as I wanted and then I activated the experimental render and I was able to create a material with cycles. I have decreased the value of the thickness of the root hair up to 0.23.(fig.8) In the cycles hair settings I kept the value of the shape to 0. I set a material for the hair with a diffuse BSFD mixed with a glossy BSFD then mixed with a translucent BSFD. I also used a ramp as factor for the mixing of the Glossy.(fig.9)

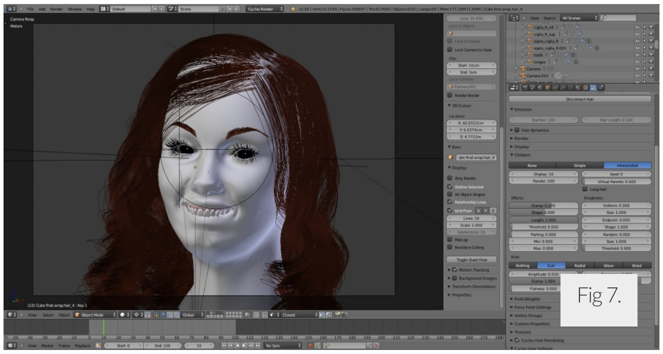


Fig 7.

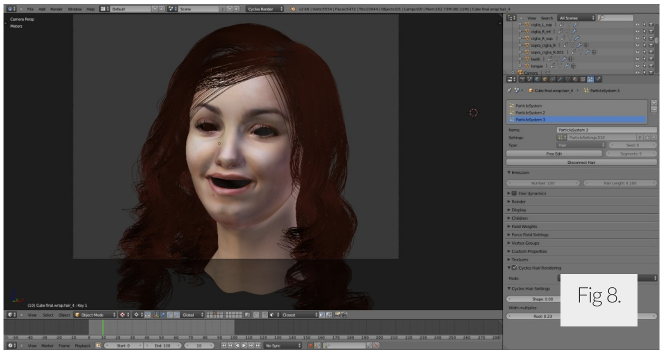


Fig 8.

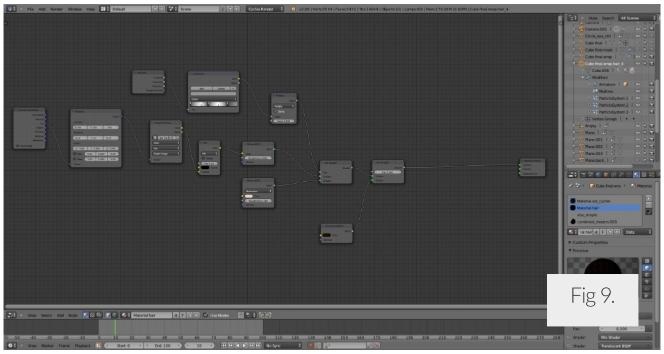


Fig 9.

I have also created two particle hair system for the brows where I adjusted the thickness and I applied the same material of the hair. I preferred to use meshes for the eyelashes.(fig.10)

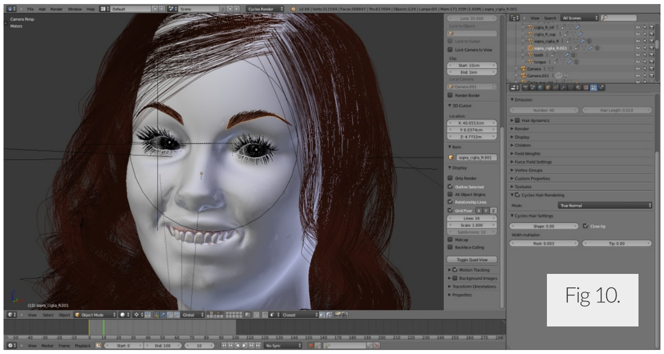


Fig 10.

RENDERING

Finally I made the render. I used 90 samples and I have rendered the model in its entirety. I used a resolution of 2000 by 1500.(fig.11) I made a small correction in Gimp using color levels to give the image more realism.(fig.12)(fig.13).

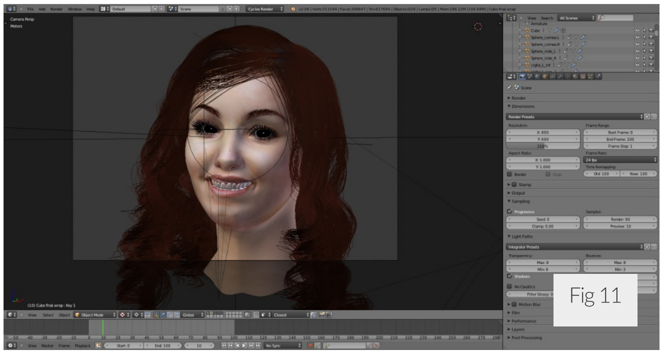


Fig 11

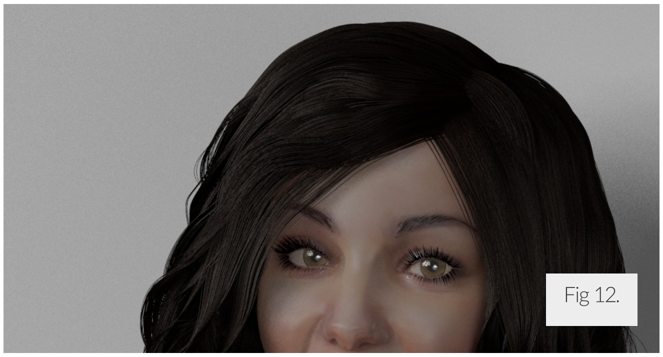


Fig 12.

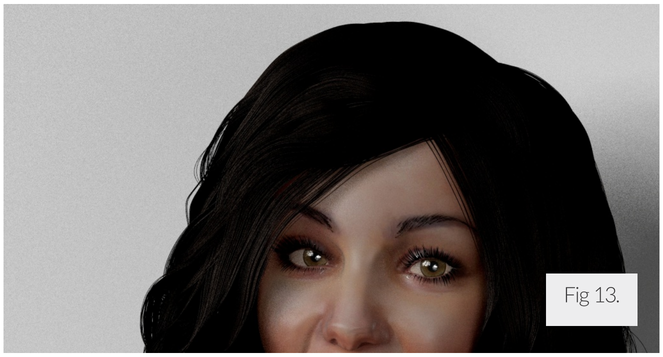


Fig 13.

CONCLUSION

I believe that the new features of Cycles open up immense possibilities especially in creation of characters and I hope that this tutorial encourages you to experiment with Blender and its amazing new improvements ●

You can contact me and see my works on www.lorenzettiarte.com

MAKING OF RED FOX

Lucas Falcao
Contributing Author

Before I start to create anything, it's really important to have several references or a solid concept art. So I get some images to help me make this fox more believable.

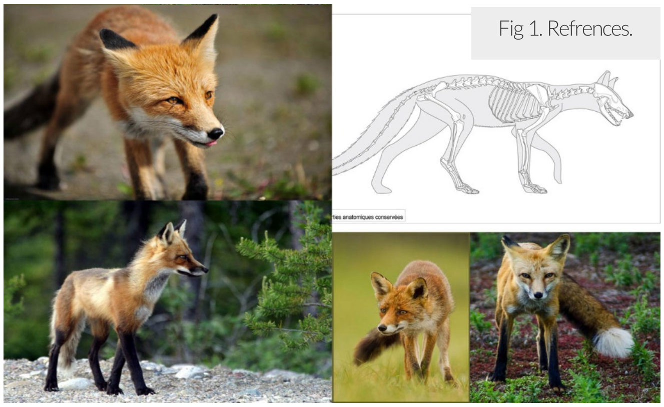
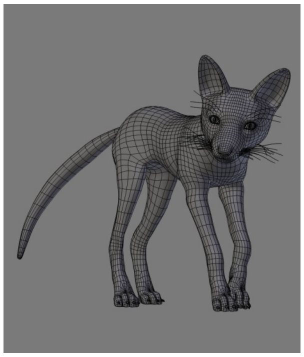


Fig 1. Refrences.

MODELING

The modeling of the fox was done poly-by-poly and refined with the sculpt tools. I used most of the brushes Grab, Inflate, Flatten to tweak until I am satisfied with the look.

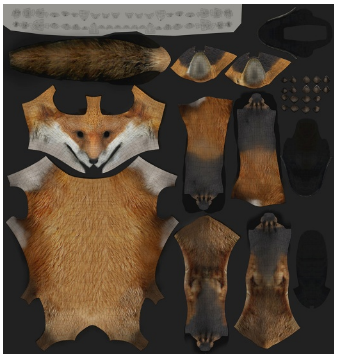


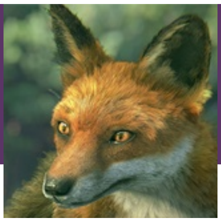
For the scenario I created a plane and subdivided a few times, just enough to add some variation on the ground. So using the sculpting tools I started to create some variation to break the flatness in the ground. I also modeled two kind of plants, really low poly, and distributed this plant on the ground with the particle system.

TEXTURING

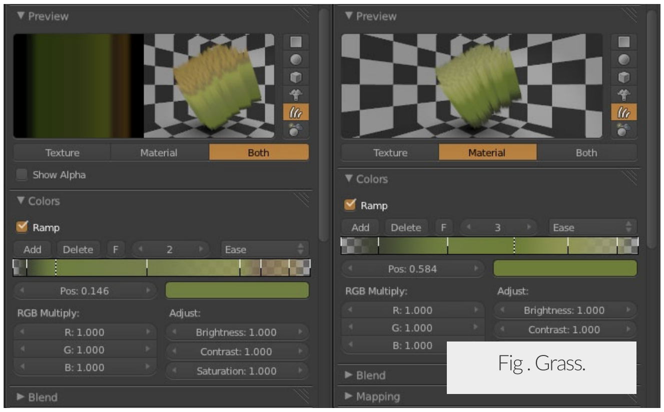
To create the diffuse texture of the Fox I used the Texture Paint tools in Blender, projecting images to create the look I wanted. You just need to create two UV channels, the first one you will unwrap a good layout, in an optimized way and trying to avoid distortions. In the UV/Image window you can see the distortion of your UV by checking the Stretch option in the Display panel (hotkey N to open this panel).

The second UV you will use to project the images in the first UV, so unwrap freely in this channel using specific parts of the your images. And for the ground, I used a tile texture from the site CGTextures and the trees in the background are also from the same site. For the rest of the scene I just used procedural textures.





Making Of Red Fox



Preview
Texture | Material | Both
Show Alpha
Colors
Ramp
Add | Delete | F | 2 | Ease
Pos: 0.146
RGB Multiply: R: 1.000 G: 1.000 B: 1.000
Adjust: Brightness: 1.000 Contrast: 1.000 Saturation: 1.000
Blend

Preview
Texture | Material | Both
Colors
Ramp
Add | Delete | F | 3 | Ease
Pos: 0.584
RGB Multiply: R: 1.000 G: 1.000 B: 1.000
Adjust: Brightness: 1.000 Contrast: 1.000
Blend
Mapping

Fig . Grass.

FUR

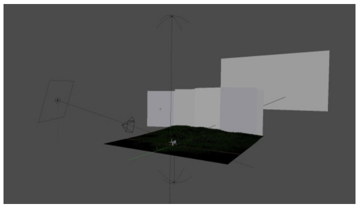
For both the fur and the grass I used the particle system (hair) to create them. I used two layers of particles to give the look on the fur, one to create an overall fur and the second layers to break the uniformity. The color of the fur is generated from our diffuse texture created before, but I also used a color ramp (black and white) to create a fake shadow on the fur, just use the Strand/Particle mapping and change the blending mode of this texture to multiply. In the grass I used two color ramps, one for the small grass and the other for the high grass.

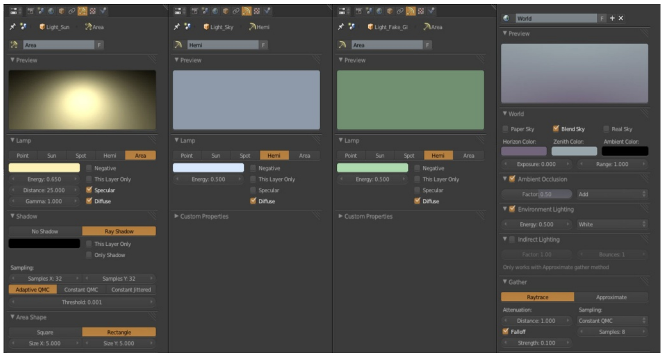
LIGHTING

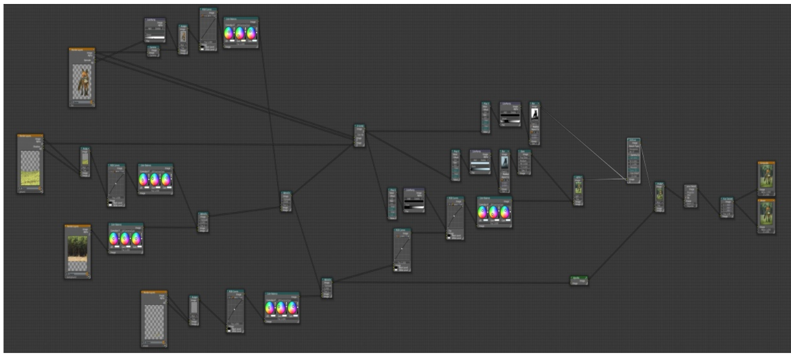
To make the lighting of the scene I used 3 lights. One main Area light coming from above with a yellowish color that represents the sun. The other two lights I used to create some fake GI, one Hemi Light with a bluish color to simulate the sky and another Hemi Light with a greenish color to simulate the bounce light coming from the grass.

COMPOSITING

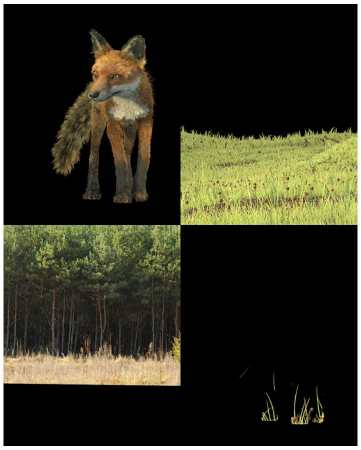
For the post-production I separated four render layers, the fox in one layer, the grass in another, the background in another and the Zmask.

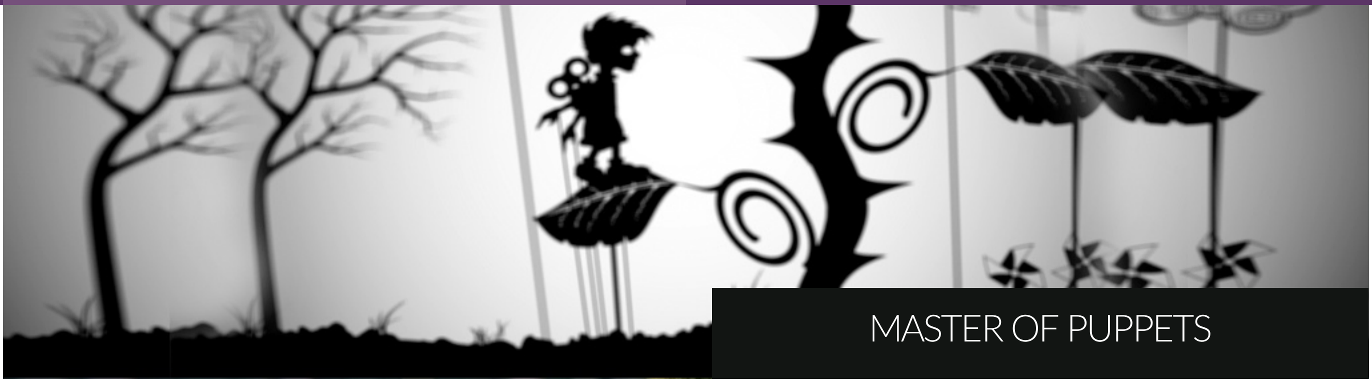






In the compositor I put all layers together, used some color correction and created some effects like, fog, depth of field, vignette and lens effects ●





MASTER OF PUPPETS

Martin Stern, Jürgen Stern
Contributing Authors

Blender is not only about 3D: It turns out to be an equally great tool for creating astonishing “looks like 2D” animations.

“Can’t you just do something with barely dressed girls, hot pyro effects, polished muscle cars and some guys with long hair banging their heads?” was the first reaction we got when we told our friends from a rock band about our idea to make a video clip. Although the thought to work together with “barely dressed girls” had quite some appeal to us, we definitely wanted to do a short animation in the style of a shadow play.

On the one hand, we believe the ancient art of shadow plays to be somewhat unjustly forgotten. Due to the minimalistic style on the other hand, we felt capable of accomplishing a five minute animation regardless of our lack of time and animation experience. So no girls, no pyro effects, no muscle cars or long-haired guys but just some lights and shadows behind a canvas.

WE’VE ONLY JUST BEGUN

Our first attempts with a bed sheet, millions of scraps of paper and a lot of wooden sticks had failed due to serious problems with handling all the sticks and papers, resulting in some painful typewriter’s cramps. So we were pretty sure that we had to use CGI to accomplish our goal. For that purpose, we poked our noses into some 2D animation suites.

Unfortunately, we couldn’t get sufficient results. All our attempts were lacking the desired gloomy atmosphere; It just didn’t look like a dim, flickering lantern throwing ghostly shadows on a canvas. Furthermore, one of the most difficult problems was to obtain the typical blur effect that occurs when a prop or a character appears or disappears on the canvas. Though the search for an adequate tool turned out to be more time-consuming than we thought, we started drawing sketches as well as a rough storyboard in the meantime.

Eventually we tripped over Blender, because it seemed to be a powerful animation tool and -- in comparison to some 2D animation software out there -- seemed to work with high performance; which gets really, really important when you want to do a music clip where the video and audio signals ought to be in sync.

PAPER CUTS

After we had spotted the light in the jungle of tools, we had to take care of our shadows. The first step was to transfer our drafts and sketches into scalable vector graphics via the free and open source graphics editor “Inkscape”. Inkscape makes it really easy to create great looking, high quality scalable vector graphics. It happened to be the perfect tool to draw the black stencils for our shadow play. We just had to make sure that all the

parts we wanted to be moveable in Blender were also separate objects in Inkscape. Thanks to Sergey Sharybin and his great SVG-import-plug-in [2], we were able to import our SVG files into Blender (File>>Import>>Scalable Vector Graphics). Avoid converting strokes to paths in Inkscape as this almost always leads to unsightly glitches in Blender. But even keeping that in mind, we sometimes still could not get a complex shape into Blender without flaws. We figured out that it almost always helps to draw another shape on top of the existing one, combine them via the “Union”-function and repeat the import. After we had imported all the characters, props and backgrounds, we were ready to set up our stage in Blender.

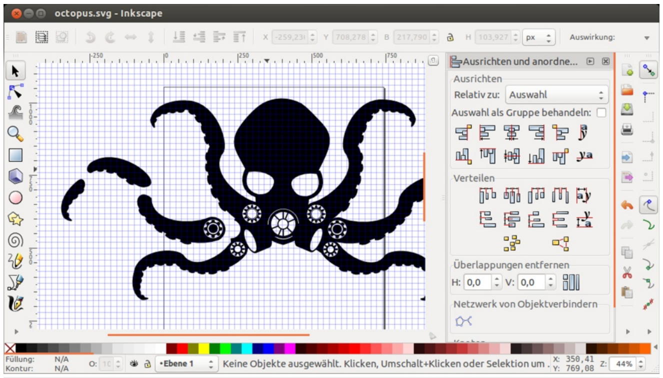

octopus.svg - Inkscape
Ausrichten und anordne...
Ausrichten
Relativ zu:
Auswahl
Auswahl als Gruppe behandeln:
Verteilen
Überlappungen entfernen
Netzwerk von Objektverbindern
Keine Objekte ausgewählt. Klicken, Umschalt+Klicken oder Selektion um ...

Figure 1: Screenshot of the ‘Hexapus’ drawing in Inkscape

INTO THE VOID

Before digging into the details of the animation, let us have a look at the basic setup of the scene in Blender. In general, we added all the stuff which would be needed in order to build a shadow play in the real world as well. There is a white canvas, a light source behind the canvas and, obviously, a lot of moving, shadow-casting objects in between. And just as simple as a bed sheet in the real world, the canvas in Blender is made of an ordinary mesh plane, covered with an equally ordinary white material. There is nothing special about the material except that it has to be able to “receive shadows” (which is the default setting for materials but can also be set in the “Shadow” section of the “Material” pane in Blender). Figure 2 illustrates the arrangement of the camera, the light and some objects in the scene.

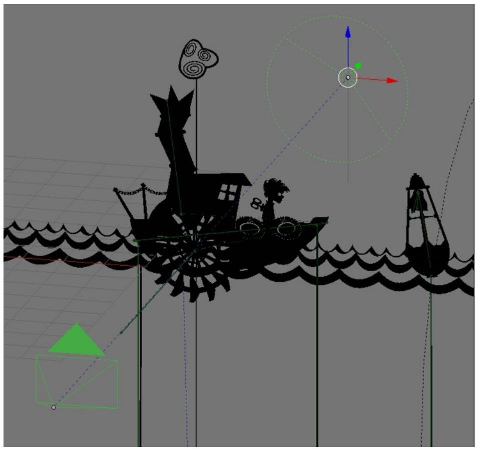
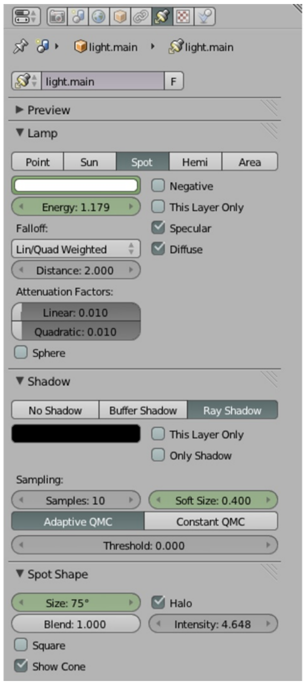


Figure 2: Set-up of the light, the camera and the objects in Blender

LIGHT MY FIRE

The light source behind the canvas is definitely the more interesting part of the scene. It plays an important role in making the shadows dance. And just as a child with a torchlight, we played around with our light in Blender until we found the right energy, distance and cone size. There are several specific settings that need to be done in Blender in order to make the shadow play work. Figure 3 shows the settings of the spot light that we used as the main light source for the first frames.



light.main ▸ light.main

light.main F

▶ Preview

▼ Lamp

Point | Sun | Spot | Hemi | Area

☐ Negative

Energy: 1.179

☐ This Layer Only

Falloff:

☑ Specular

Lin/Quad Weighted

☑ Diffuse

Distance: 2.000

Attenuation Factors:

Linear: 0.010

Quadratic: 0.010

☐ Sphere

▼ Shadow

No Shadow | Buffer Shadow | Ray Shadow

☐ This Layer Only

☐ Only Shadow

Sampling:

Samples: 10

Soft Size: 0.400

Adaptive QMC | Constant QMC

Threshold: 0.000

▼ Spot Shape

Size: 75°

☑ Halo

Blend: 1.000

Intensity: 4.648

☐ Square

☑ Show Cone

Figure 3: The light panel’s settings of the main light in Blender

Obviously, there is little else than shadows in a shadow play. So the only thing that has to look reasonably good is, well, the shadows. Thus, it might be no big surprise that we used raytracing extensively for almost all of

the lights. In order to make the main light flicker a little bit, we added a “Noise” F-Curve Modifier (Graph Editor>>[N]>>Add Modifier>>Noise) to the light's energy property (there is a nice video tutorial [3] by Andrew Price about how to add and use the Noise Modifier for creating flickering lights). For the reason of usability, we made the main light a child of the camera, so that it follows the camera’s movements.

THIS LITTLE LIGHT OF MINE

By changing the position, the energy, the color or the distance of the light, we were able to realize different scene styles and atmospheres. For instance, figure 4 shows a frame of the underwater scene, with a blue colored, dimmed main light.

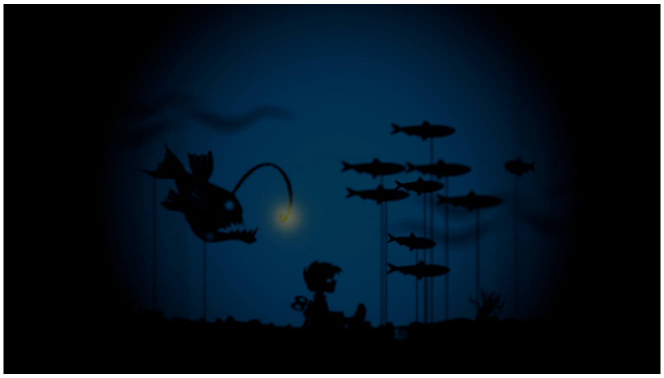


Figure 4: Rendered frame of the underwater scene.

To create stars, explosions and reflections, we used even more lights of different colors and shapes. Especially for the stars, there had to be a lot of spot lights that would shine brightly and twinkling on the canvas. For that purpose, we used mesh planes (Add>>Mesh>>Plane) with particle emitters (Particles>>Add a Particle System) to duplicate a single spot light and create the illusion of stars flying by. Figure 5 shows one of the stars-emitting mesh planes (as well as its settings) in Blender. Figure 6 shows the result of the rendering.

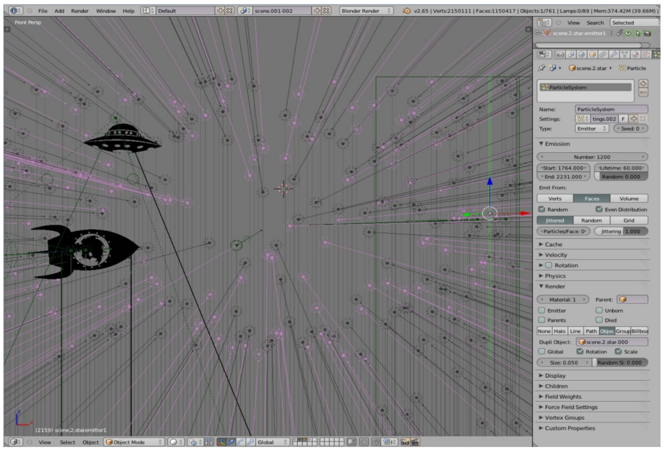


Figure 5: Mesh plane emitting stars in Blender.

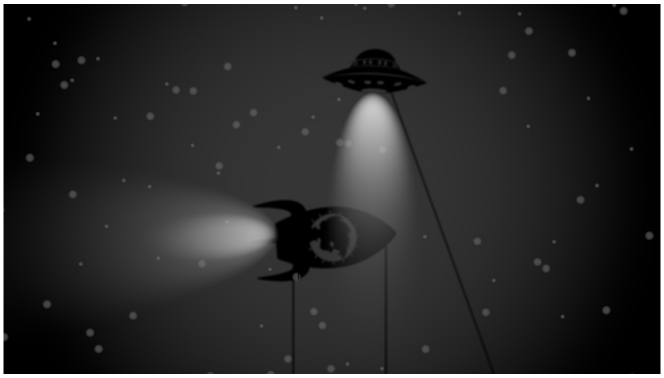


Figure 6: Rendering of the outer-space scene.

A detailed description of all the different settings and features that we utilized for our lights in the video clip would go beyond the scope of this article. However, there are some basic tricks and features that we used for many of the lights and which might be worth to mention:

> - We used spot lights (Add>>Lamp>>Spot) for all directional lights which hit the canvas with some angle.
>
> - We changed the position, angle and cone size of a spot light in order to make shadows appear longer or shorter, or to create the illusion of an explosion that spreads out over the canvas.
>
> - We placed point lights (Add>>Lamp>>Point) very closely behind the canvas for all non-directional lights like signal lights, etc.

- To make a light pulsate, we inserted two key frames for the light's lowest and highest energy peak and used the "Cycles" F-Curve Modifier (Graph Editor>>[N]>>Add Modifier>>Cycles) to repeat (cycle) the pulse.

NEEDLES AND PINS

All the shimmering lights in the world, however, would not make our puppets dance. So we had to do the rigging of our figures. This was at first surprisingly hard to do. The rigging in Blender (as in any other 3D suite, we guess) is mainly designed to reproduce smooth movements to get a lifelike illusion of bending joints out of flesh and bone. But in our shadow play we deliberately wanted to give the impression of clunky motions controlled by a puppeteer. Fortunately we stumbled upon the (pretty old but still valid) tutorial from jazzdalek about rigging cutout style characters in Blender [4].

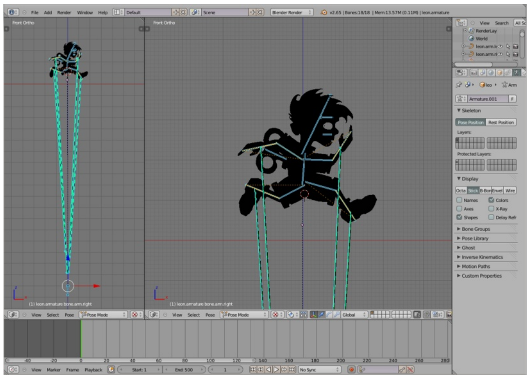
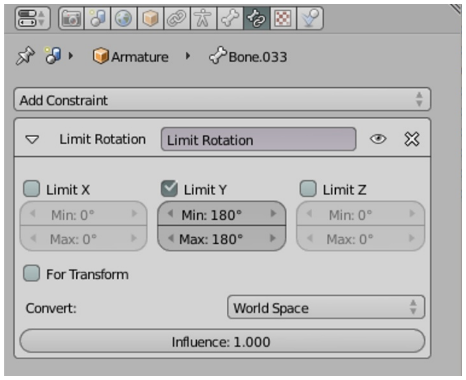


Figure 7: Armature of the main character.

Except of the bones for the extremities we had to ensure that the handles were fixated and always pointing downwards. For that purpose, we added a bone to each handle and used limitation bone constraints for keeping the handles aligned to the y-axis. Figure 8 shows the constraint setting for such a handle's bone.

In addition to the characters' armatures, we made quite extensive use of the following Blender features to animate our props:

- We added "Generator" F-Curve Modifiers (Graph Editor>>[N]>>Add Modifier>>Generator) to achieve linear movements.
- We used "Cycles" F-Curve Modifiers (Graph Editor>>[N]>>Add Modifier>>Cycles) to do repeating, mechanical movements, for example for the gear-wheels in the harbour scene.
- To emphasise the illusion of a puppeteer's shaky hand, we assigned some moderate "Noise" F-Curve Modifiers (Graph Editor>>[N] >>Add Modifier>> Noise) to the bones of our handles.



Armature ▸ Bone.033

Add Constraint

Limit Rotation: Limit Rotation

☐ Limit X — Min: 0° — Max: 0°

☑ Limit Y — Min: 180° — Max: 180°

☐ Limit Z — Min: 0° — Max: 0°

☐ For Transform

Convert: World Space

Influence: 1.000

Figure 8: Bone constraint settings for a handle.

THE SOUND OF SILENCE

After having erected the canvas, turned on the lights, prepared the models and cleaned the lens of the camera, we could hardly wait to start with the animation action itself. But we still wanted to do a music clip. So we thought that some music might come in handy. For that purpose, we already had some rough plan (in the form of a story board) of which scene we want to do on which part of the song. First of all, we imported the song's MP3 file into Blender via the Video Sequence Editor ([Shift+F8]>>Add>>Sound). Since we decided to work without any camera cuts and thus with only one scene in Blender, we did not have to arrange the scenes or cut the sound strip into several pieces.

TIME IS TIGHT

In the next step, we set time markers (Timeline>>[M]) at the beginning of each of the song's main parts: e.g. at the beginning of the first chorus, at the beginning of the refrain, and so on. Each time we reached the next part of the song, we measured it in every single

detail. That means we added time markers for (at least) each quarter beat of the part's measures. This was as painful and boring as it sounds. At least, it is possible to calculate the position of the next beats once you have measured one or two bars of a part with a consistent tempo. Figure 9 shows one part of the video clip's timeline with markers for each beat of the song. When doing the animation, we used these markers to drop our key frames on.

Especially for the fine-tuning of the animation, Blender's "Dope Sheet" turned out to come in very handy. It allows you to experiment with the position of the key frames until the animation is perfectly in line with the rhythm of the song. Figure 10 shows the dope sheet of the video clip with markers set.

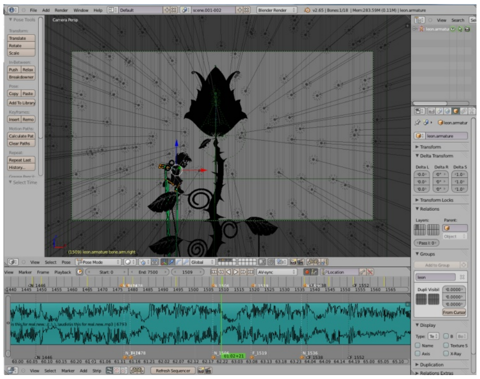


Figure 9: Synchronised timeline and video sequence editor.

IN THE END

Blender definitely helped us to realize the kind of shadow play video clip that we had in mind when starting with the project. The possibility to arrange the lights, the models and the canvas on different layers in a three-dimensional space, in combination with the ability to actually let the shadows be cast on a canvas made Blender outclass the 2D animation tools that we evaluated for our purpose. But most of all, it allowed us to create images that are immediately recognized as a shadow play.

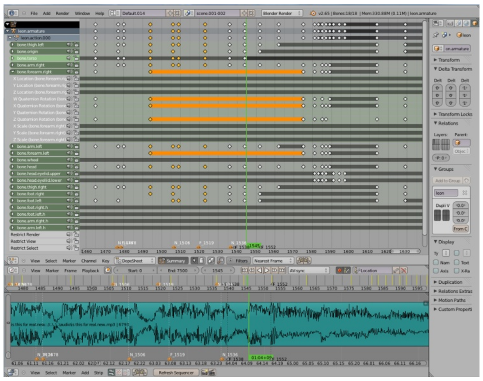


Figure 10: Dope sheet of a section of the video clip.

About the Authors

Ever since he was a child, Martin Stern wanted to create an animation movie with his own hands. In the last summer, he was finally able to celebrate his debut as an enthusiastic hobby animator together with his brother Jürgen. Along the way, he became a big fan of Blender. Martin is working as an IT Professional near Munich, Germany.

Not entirely by coincidence, Jürgen Stern happens to be the lead guitarist of the band "General Sherman" [5], for which he created his first animation video clip together with his brother Martin. If he is not just playing the guitar, drawing some scribbles or having an argument with his brother, he is working as an IT Professional in Ingolstadt, Germany.

In addition, Blender provides a lot of really great features, especially for the creation of a music video clip. The timeline, the dope sheet and the graphic editor allow to easily synchronize the animation with the music. The animation as well as its synchronisation are handled with high performance in real time; which is probably the most important thing when working on a music video clip.

Fortunately, the guys from the band as well as their fans totally seem to enjoy the video clip. They already asked us to do another clip. This time we think we want to do something with all this girls, muscle cars and pyro effects stuff ●

[1] http://www.youtube.com/watch?v=GcYdgudn83M
[2] http://wiki.blender.org/index.php/Extensions:2.6/...
[3] http://vimeo.com/9853432
[4] http://www.fantoccini-inc.com/tutorials/rigging.htm
[5] http://www.general-sherman.de (Ger)
[6] http://www.facebook.com/generalshermanband (Ger)

SCIENCE LAB WAS EMPTY!

BLENDER FOR COMIC ILLUSTRATIONS

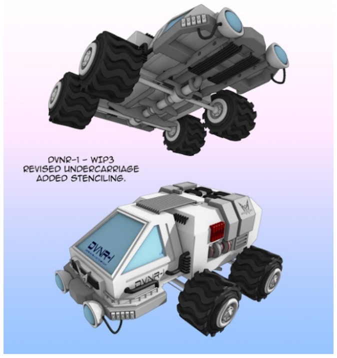
Paul Caggegi
Contributing Author

I frequently use Blender to create backgrounds, set pieces and vehicles for my web-comic, Pandeia: a sci-fi action adventure quest to restore the shattered moon and bring balance back to the Earth.

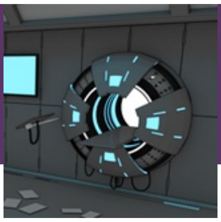
I began dabbling with the Edge pass in the render settings when it first became available, and always thought it might one day come in handy to create illustrations. While it wasn't the perfect solution on its own, combined with Blender's compositing nodes, I developed a method of creating exciting sets and props which could be mixed with digital inks to create the finished look of the comic.

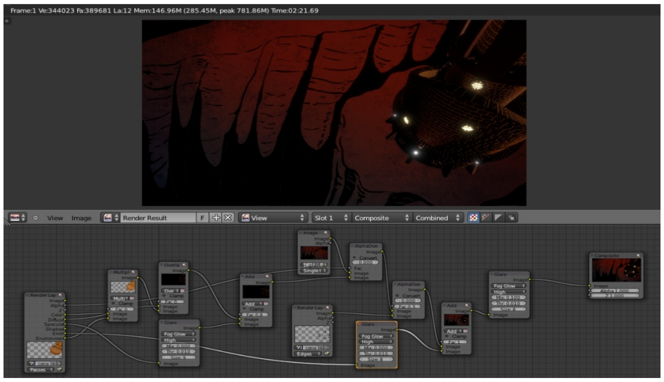
THEY REACHED THE CONTROL SARAI WITHOUT INCIDENT. HOWEVER THERE WOULD STILL BE GUARDS TO GET PAST.

There is a bit of back-and-forth between GIMP and Blender. I sketch an outline in GIMP, then build a set which roughly corresponds to the sketch. I then import a png as a background image using the camera view to position the angle to match the set closely. I adjust any lighting and textures, then do several test renders, using the compositing nodes to mix various passes to enhance shadows or highlights. I make use of the glare filter, adding lens flares and fog glows to give the image a polish.



Different panels demand different solutions, and sometimes I'll do the final colour adjustments in GIMP, but occasionally, I will import a background complete with inks and colours into Blender and place the 3D element over it using the “Alpha Over” node. I will then add any extra effects – glints, flares, glows – to the overall image.





```
Frame:1 Ve:344023 Fa:389681 La:12 Mem:146.96M (285.45M, peak 781.86M) Time:02:21.69
```

Creating a set in Blender saves me a lot of time. Once the nodes have been set up to achieve the desired look, I set up several cameras to shoot the necessary angles for each panel needed.

Sometimes the set may appear in several pages. Having completed backgrounds means I can focus on just doing the foreground characters, and I can sometimes pump out three entire pages in a single evening ●

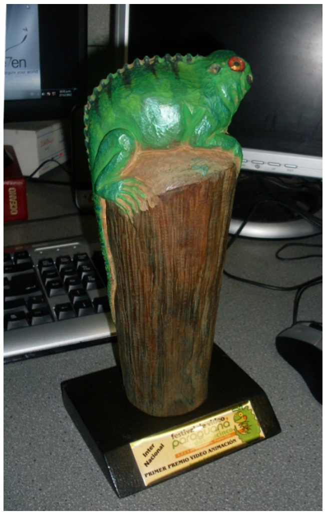
MAKING OF TROPHY

Osman Enrique Acasio
Contributing Author

A trophy is a recognition given to a person for reaching a goal or some excellent activity that deserves to stand out. Their form and size is very varied and its design is limited by its designer's creativity and the materials used for its production. These materials can include metal, plastic, glass or even wood.

In fact, the purpose of the present article is sculpting a trophy from a real trophy. For the reference I will use a wooden trophy that was awarded in a festival of videos that was carried out in the Peninsula of Paraguaná, Venezuela some years ago.

This project is appropriate to demonstrate the qualities of the tools for sculpting with Blender.



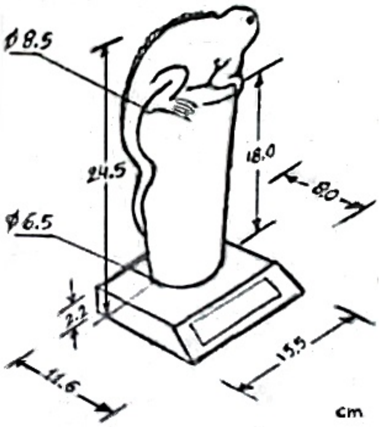
DOCUMENTATION.

Regarding the trophy to model, it consists of a wooden square base, with a glass column pedestal and an iguana carved from the wood of the Guayacan tree (autochthonous tree of the area) at the peak. This was a handmade piece made by an artist of the town.

Five pieces in total were manufactured for the National Festival of Video Paraguana edition 2005. The trophy shown in the following picture corresponds to the first prize for best video animation.

MEASURING THE TROPHY

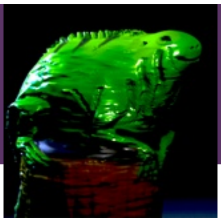
The next step is to take measurements of the trophy to model.



CREATING THE MODEL BASE

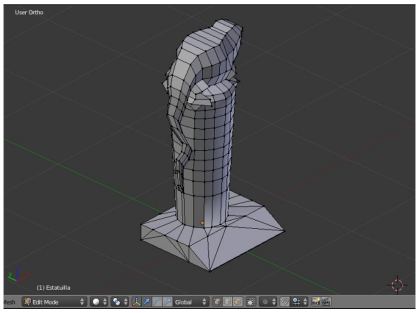
With the measurements of the trophy for reference, I proceed to create a model with a low polygon count. I begin the model base of the trophy, in a simple geometric way by adding a cube. With the extrusion technique, I give more volume to the mesh.

With this process a mesh is obtained with a relatively low number of polygons. This low polygon mesh will be the base model to sculpt and create the trophy.

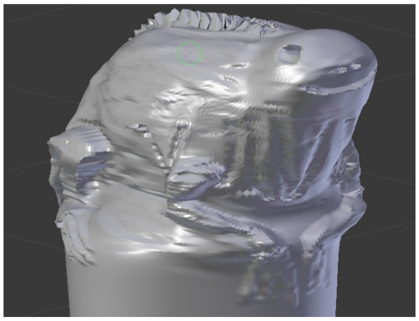


Making Of Trophy

SCULPTING THE MODEL



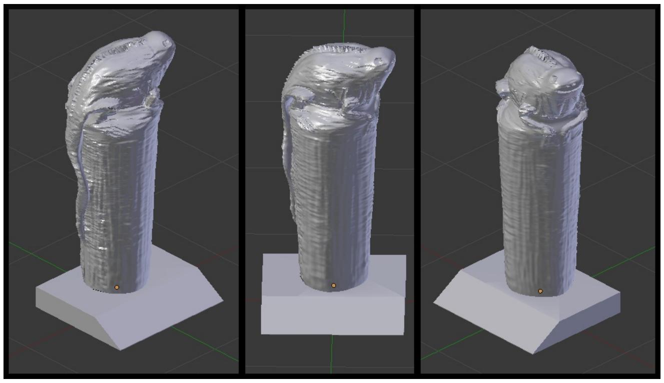
The finished model is created with the sculpting tools. The modifications will give the model a more detailed finish. I divide the pattern in four subdivision levels. I focus on the details by using the Standard sculpting tools (F-Brush, F-Draw).



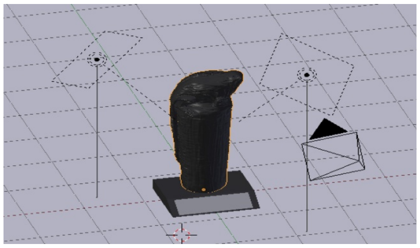
The crest of the iguana is sculpted using the brush F-Draw in combination with the brush F-Grab. For the mouth, the eyes and the nose the brush F-Brush was used in subtraction mode.

MODEL FINISH

Once I finished the details of the iguana, I sculpt the grooves of the pedestal so that they resemble a wooden pedestal. Once finished with the sculpting, I create a set of illumination for the model.



ILLUMINATION

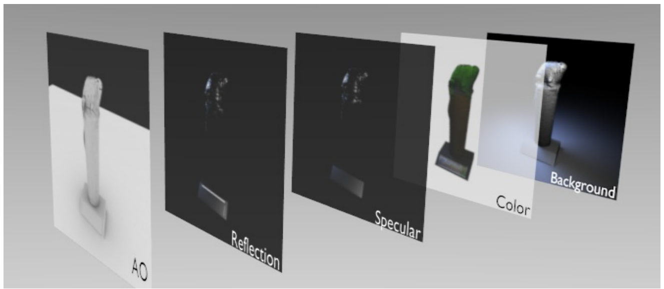


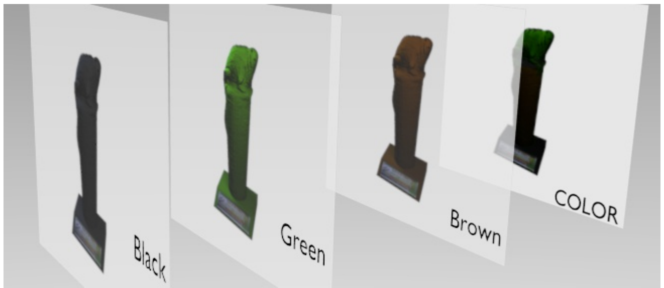
I build a small and simple set of illumination made up of a couple of area lights. A white light as main illumination and a blue light as ambient light.

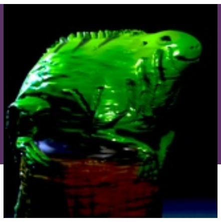
RENDERING

I carry out several renders of the trophy in layers. A render for Ambient occlusion (AO) layer, a reflection layer, a specular layer, and a color layer.

The color layer carried out it composing the image in GIMP with the render of several layers for colors of the trophy.



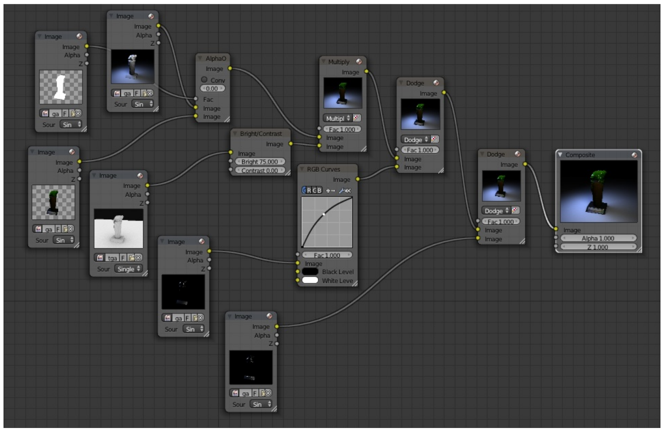




Making Of Trophy

COMPOSITION

All the layers rendered previously of the trophy are merged using Nodal composition. This way I create the final image.



AlphaO: 0.00

Bright 75.000

Contrast 0.00

Multiply: Fac 1.000

Dodge: Fac 1.000

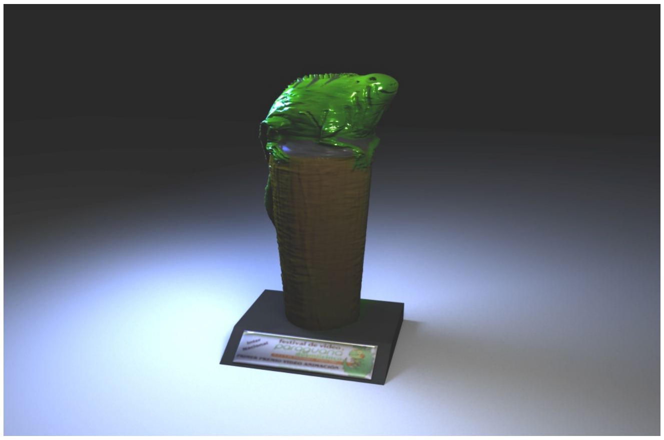
RGB Curves: Fac 1.000

Dodge: Fac 1.000

Composite: Alpha 1.000, Z 1.000

THE FINAL IMAGE

Resulting final image of the nodal composition.



CONCLUSION

The sculpting tools of Blender never cease to surprise me, and its use is for me an entire delight. Whether I'm sculpting human faces, standing out the curves of a lady or creating a wooden trophy, their use fills all my expectations totally. A powerful tool with which all 3D artists can use ●

BLENDING

Everyday blendeing for all of us

SCIXEL: MAKING A LIVING OUT OF BLENDER

Enrique Sahagún

Contributing Author

Six months ago I started a one-man project called Scixel. The goal of the company is to make digitally designed products for scientists and engineers such as images, animations, technical plots, web pages, interactive graphs, etc. The majority of these works are made with Blender. Surprisingly, Scixel has had a terrific beginning. It is still too soon to know whether it will work in the long term and my experience is not long enough to give advice. But probably the story of how Scixel started would encourage others to start their own projects.

HOW IT ALL STARTED

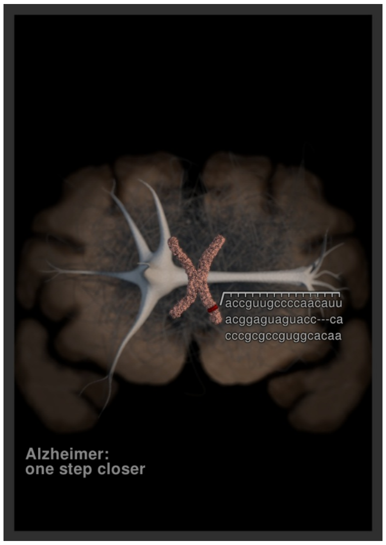
Scixel's story begun in my last year at the university, while finishing my Ph.D in physics. I had started playing with Blender two years before and lots of my scientific works had a picture or an animation made with this amazing software, even my thesis manuscript. Using Blender for all kind of scientific representations is extremely effective.

Once you learn how to write python scripts you can start feeding Blender with data from experiments or simulations and that allows you to make beautiful and scientifically accurate pictures.

At some point my images became very popular for several reasons. The first reason is that they were pretty good compared to those my partners were used to seeing in scientific papers or presentations. The second reason was that I was able to do things that were not possible with standard data representation software. The third reason, and probably the most important was that I started doing images and animations for my partners, for free. I became the “would you do this for me?” guy.

I understood a few things in those days. Although I was not an expert in digital graphics, my skills were good enough to cover the scientific market. Science at that time was a non explored jungle for digital graphics. I also learned that by making images for free, you make a lot of friends. Lots of scientists and engineers were interested in improving their technical works by adding high quality digital material. And being a scientist myself, I was their man. I had accidentally found my market niche.

So at this point, having finished my Ph.D, being Spanish, with no job expectations and with a global crisis hitting us, I had only one way to escape: to create my own company. Scixel had to be a success because things



couldn't get worse!

So far, things are going surprisingly well. I have two magazine covers, one image in nature, several animations for research institutes and companies and I'm designing several web pages. Up to this point, I cannot give advice to anyone because I have to accept that among other things, I have been very lucky. Instead I can make a short list of elements that have been useful for me. But first of all, let’s answer a question:

GENERALISTS ARE DOOMED?

I'm a generalist, as most of the people I see around Blender. When one tries to hit professionalism as a digital artist, one finds that generalists are of no use. Industry looks for specialists in modelling, texturing, setting up lights, rigging, shooting, etc. That is something that has pissed me off for quite a long time. I find it boring to focus in one particular area. I want to make images and movies!! and that requires you to have some knowledge in many areas.

Then, how can you access industry being generalists? Well, my solution has been to reduce my field of action. I know I have no tools to make a Hollywood movie. But I have the tools, the experience and the knowledge to face scientific projects and make a living out of it.

FIND A NICHE AND LEARN ITS LANGUAGE

Be sure that there are hundreds of areas where digital graphics (in any of its many shapes) haven't already hit. Look for your niche, explore it and study how digital graphics would improve their business.

And importantly, make an effort to learn your niche's language. This is easy for me to say because my niche (scientists) was once my job. But it is not that simple. I deal with many branches of science I have no idea of: biologists, chemists and engineers and I have discovered that knowing their vocabulary saves a lot of your (and your clients) time and shortens meetings. And it has also an interesting side effect: clients feel more comfortable when you understand them.

DON'T STOP LEARNING

I have been using Blender for six years and my estimation is that I know how to use 1 or 2% of it. It is important to keep on learning how to use it. And not only how to but importantly how to do them better and faster. And the same holds for everything: other pieces of software, programming languages, scripting languages, technical and artistic stuff, etc. The more you know, the better your products will be and the faster you'll finish them.

AND FINALLY, ALWAYS SAY YES

Whenever someone ask you, could you do this?, don't think if you already know how to do it. Always say yes. And then run home and learn how to do it! This connects with the former point: the more you learn the easier and the faster it would be to learn more stuff when needed.

My conclusion here is very simple and up to this moment, quite optimistic: it is possible to make a living being a generalist, as long as you find your niche. You only have to work hard and find your niche and learn a lot in the meantime. Good luck! ●

Enrique Sahagún
enrique@scixel.es
www.scixel.es

BLENDING

Everyday blendeing for all of us

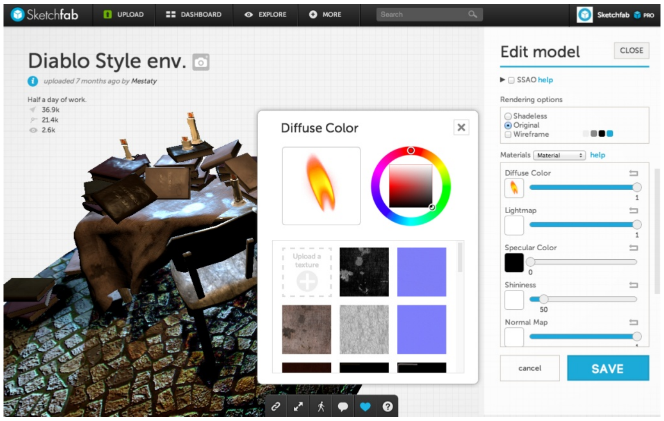
SKETCHFAB MATERIAL EDITOR

Alban Denoyel
Contributing Author

We have been working on it for a long time now, and are happy to release our long-awaited material editor (our new year present to the community!) :)

With this great tool featuring multi-material support, you can now fine-tune the rendering of each material of your scene in real-time with the Sketchfab viewer.

The material editor is available from the Edit panel, in the right side of the viewer. It lists all your materials with the names you gave them. Picking a material will center the camera view on it and outline the model for easy identification. All your textures are listed there too where you can swap them or upload new ones, as well as pick a color with our color picker.



For each material, here are the settings you can control:

- Diffuse Color - You can use the original diffuse texture if you uploaded one with your model, or use the color picker to tint the model.

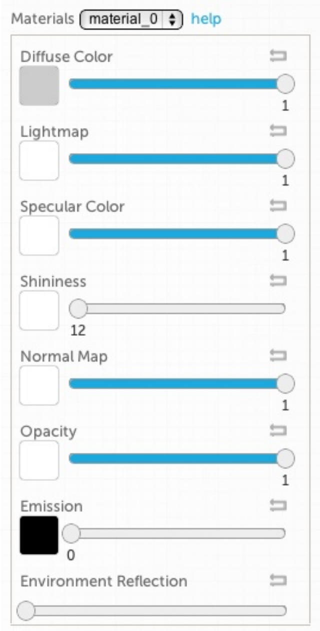
- Lightmap - This slot is for pre-baked lighting on your models. Use this for any shadows you have rendered onto the model.

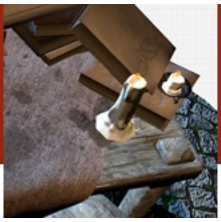
- Specular Color - This controls the intensity of the texture meant to reflect in light.

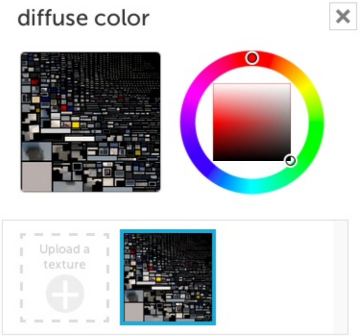
- Shininess - This slot controls the sharpness of the specular map, and higher settings make the material glossier. You can only select a texture not a color, if you select a color it will disable the texture. If you don't use the texture only the factor will affect the rendering.

- Normal Map - This setting will have an effect only when selecting a normal map. The factor will blend the amount of the normal between the geometry normal and the normal map. For example if set to 0, the rendering will use the geometry normal, if set to 1 it will use the normal from the normal map at 100%.

- Opacity - Controls any transparency in your materials, or the overall transparency of the part of the model selected. You can only select a texture not a color, if you select a color it will disable the texture. If you don't use


Materials material_0 help
Diffuse Color 1
Lightmap 1
Specular Color 1
Shininess 12
Normal Map 1
Opacity 1
Emission 0
Environment Reflection





the texture only the factor will affect the rendering.

- Emission - This controls any part of your model you would like to have a glow or self-illumination.

- Environment Reflection - This setting is used only if you enabled a cubemap as environment. This factor is multiplied by the specular color.

Please Note - The material editor is available by default on new uploads, but requires to "upgrade material" in the edit panel for older uploads. And for some older models, upgrading material will set opacity to zero for all materials, so you will need to "reset channel" for opacity for each material to get the model back ●

BLENDING

Everyday blendeing for all of us

Renderstreet The next generation Blender render farm

Sorin Vinatoru
Contributing Author

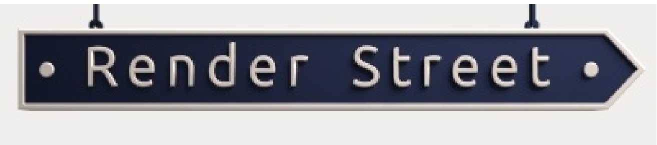
In this article, I am going to write about the story of RenderStreet, the next generation render farm dedicated to rendering Blender projects. I will touch on the topics of how we came up with the idea, what it was like building it and how it turned out in the current stage.

THE NEED

We started thinking about RenderStreet in January 2012. The idea came from a very simple need. The need to render complicated projects in a faster way than a couple of home computers can.

At that time, Oana, one of the founders of RenderStreet and the resident Blenderhead, had a difficult project. She is an architect by training, but she specialized early in her career on architectural visualization. The project needed about 10 still images and each of them took hours to render on our home computers. Since it was drawing close to her deadline, we decided to go shopping for an online rendering service that can alleviate the pressure.

So we went searching, knowing that we are covered financially by the customer who agreed to pay for the renders. We spent a couple days looking at the players in the field and trying to render a few files. We were not happy with what we found, and in the end were stuck with babysitting the renders on our own machines.



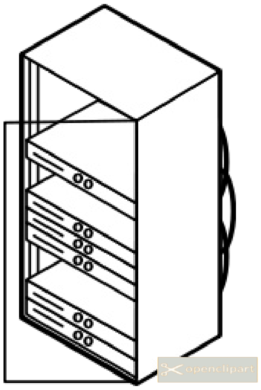
THE PLANNING

After thinking about our experience, I became aware there is a potential market here. After all, Oana shouldn't be the only Blender user who uses it for professional services and has a need to render fast. So I co-opted Marius, my longtime partner in other ventures, and started thinking on what it would take to create a better service.

We spent some time planning on what a good service should look and feel like and what the overall experience for the users should be. We distilled it to 3 major ideas and these ideas have, in time, become our mantra: ease of use, affordable price and great customer service.

Ease of use means, in our opinion, a modern site, with an interface anchored in the modern trends in web design. One that does not ask users to learn anything in order to use it. One that removes the barriers from using such a service for users who are not web wizards. At the same time, it should not be simplistic. Easy to use, yet powerful enough to allow sophisticated users to tweak their projects in more detail.

Renderstreet the next generation Blender renderfarm



Affordable, in our opinion does not mean cheap. If we wanted cheap, we would have gone for the worst computers that cost the least money. There's a fine line between cheap and affordable. We want people to be able to afford to use our service, even if it's a private person rendering a hobby project. Furthermore, we wanted it to be attractive as well to larger companies who use Blender in a professional way, since they have the largest rendering budgets. In order to achieve this, we would have to get fast servers at decent prices, so we can create an affordable price for the end customer.

Great customer service is the trickiest part to achieve when running a business. Both I and Marius have had experience setting up customer service operations and working with in house and offshore customer service departments. In my opinion, there are two key factors in having great customer service:

> - No need for such a service in the first place. If the site is easy to use and the results are delivered on time and on budget, nobody needs to talk to a customer service agent
>
> - When there is a need to talk to such an agent, the person answering needs to know the business inside and out, as well as have experience in using Blender. This way they can understand the customers' need and provide immediate resolution for his problems.

After a few weeks of talking about it, planning and investigating the feasibility of the idea, we went on to build the product.

THE BUILDING PHASE

Both Marius and I are seasoned programmers, with lots of business experience. We were new to Blender though. So we spent a lot of time learning it, understanding how it works, how the various rendering engines differentiate from each other and how we can apply our programming skills to automate it.

Once we started to get a grasp of how that works, we plunged head on into developing the site. That was the most resource intensive process and took quite a long time to complete to our satisfaction. We had a first draft of the site in mid-August and did a lot of internal testing to make sure we have a stable enough product for a beta launch.

At the same time, we reached out and investigated what it will take to get servers to render the Blender projects on. We had lots of discussions with various providers, and still are at the time of writing. So far, we have chosen 3 providers in US and Europe to source our servers from. They provide great server specifications at prices that allow us to fulfill our promise for affordable pricing.

Once we had servers to run on, we spent a lot of time getting to know how to build Blender so it takes full advantage of the hardware it runs on. We chose from the start not to go with stock or third party builds, as we felt those are general enough not to perform at Blender's peak capabilities on our hardware. With the help of the community, we understood the process quite well and are able to have our own builds that are highly optimized to the platforms they run on. This worked so well, we managed to get the 2.66 version out only 5 hours after the official release went out.

WHERE WE ARE NOW

We went online in closed beta in mid-November 2012. We were fortunate enough to be selected as a finalist in the How to Web startup competition, so we got a bit of visibility for the project at that time. When we asked the community to help us test our new render farm, the response was overwhelming. We ended up selecting 100 users for the closed beta, out of which 50 rendered their projects with us and provided feedback on what went wrong and what can be improved. All rendering in the closed beta was free of charge.

The closed beta ended at the beginning of February, when we launched the open beta phase. Even if we call it an open beta, the product is stable enough to be used for every day rendering and so we encourage everybody to use it.

This brings us to the present day. I am happy with the state we are in now, and I think we are on our way to accomplishing the goals we set for ourselves when we started the project. We support 4 versions of blender, from 2.63 to 2.66, render Cycles on GPU, are able to render still images on multiple servers by splitting them into parts and stitching them at the end, and have received many comments about the ease of use of the site and the good customer support provided so far.

That being said, it is still a young project and we have a lot of work ahead of us. To mention just a few items on our list, we still need to add support for LuxRender and VRay, expand our customer service so it can be provided 24/7 and work on integrating more functionality to accommodate the workflow of larger studios.

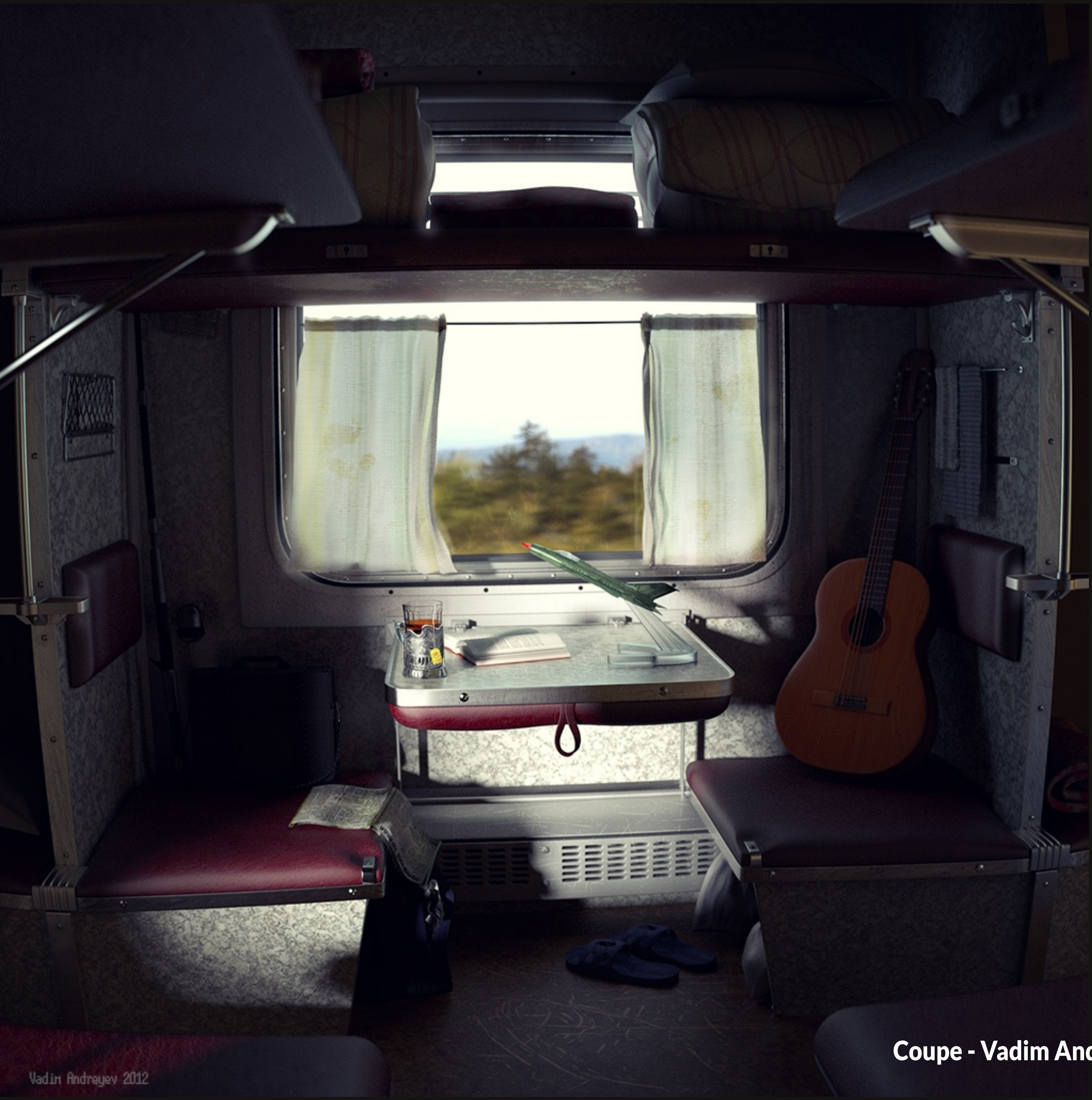
THE CONCLUSION

I think we managed to build a quality product and I want to thank the wonderful Blender community for the support given in shaping RenderStreet and it bringing to market. It has been an interesting journey and still a lot lies ahead to be discovered. I hope we'll be able to fulfill our promise to the community and keep RenderStreet as the next generation render farm for Blender ●

Sorin Vinatoru
CTO, RenderStreet
Twitter: @RenderStreet
Facebook: RenderStreet
Pinterest: RenderStreet

GALLERIA

Blender artworks from the blenderheads



Coupe - Vadim Andreyev

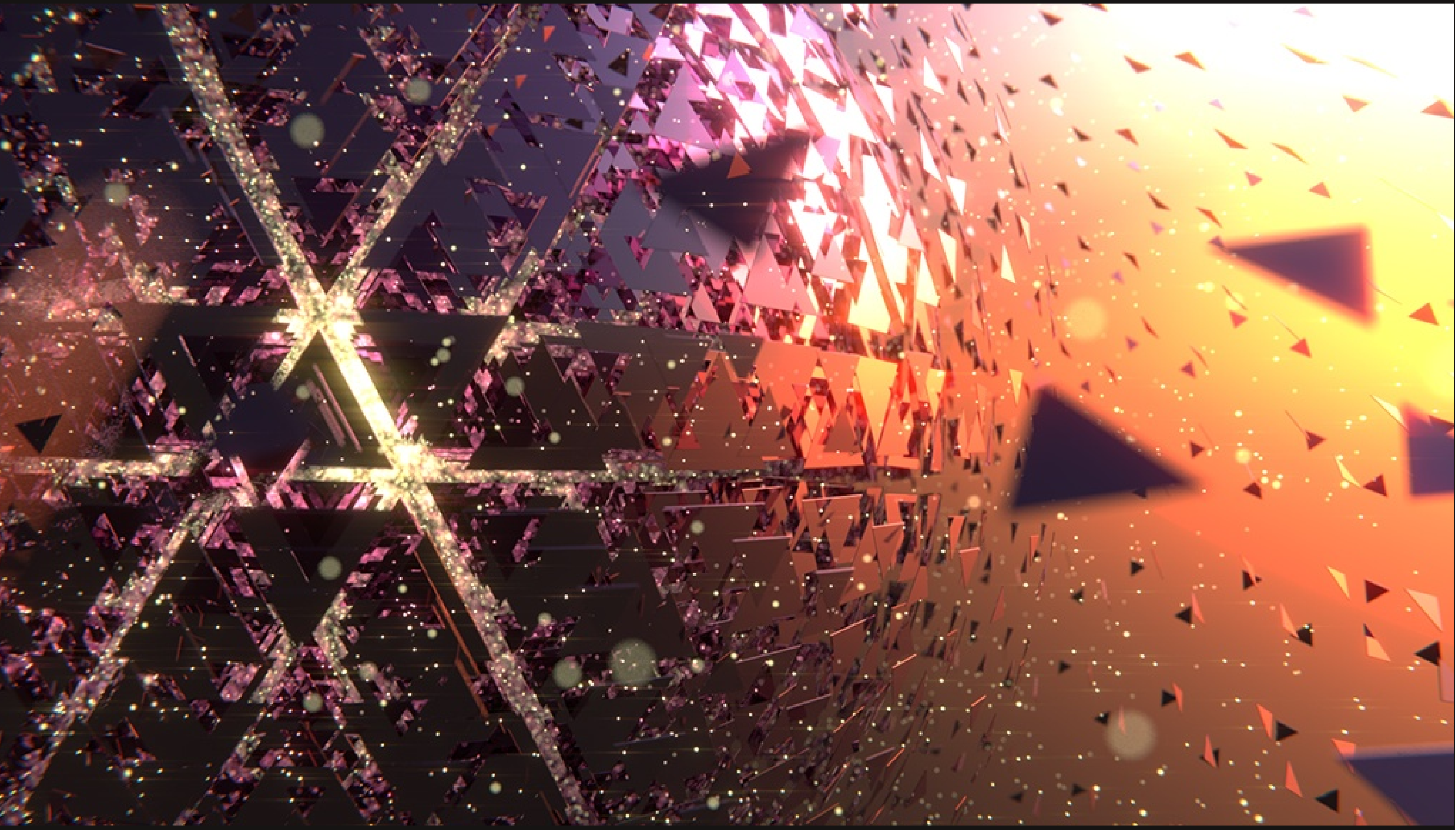
GALLERIA

Blender artworks from the blenderheads

Self Healing - Dani nur Zainudin

GALLERIA

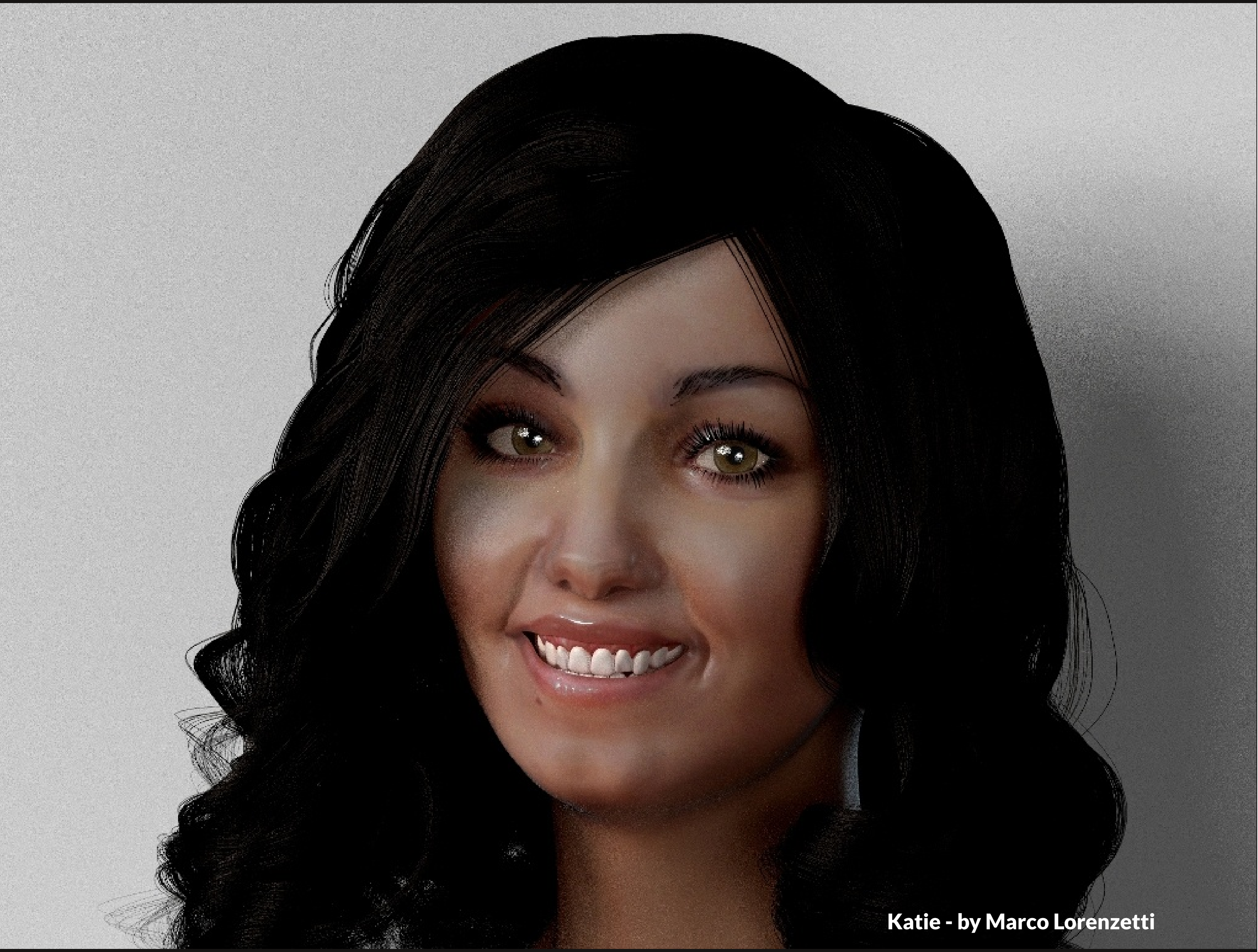
Blender artworks from the blenderheads



Icosphere - Triangle abstract - by Eric Verpoorn

GALLERIA

Blender artworks from the blenderheads



Katie - by Marco Lorenzetti

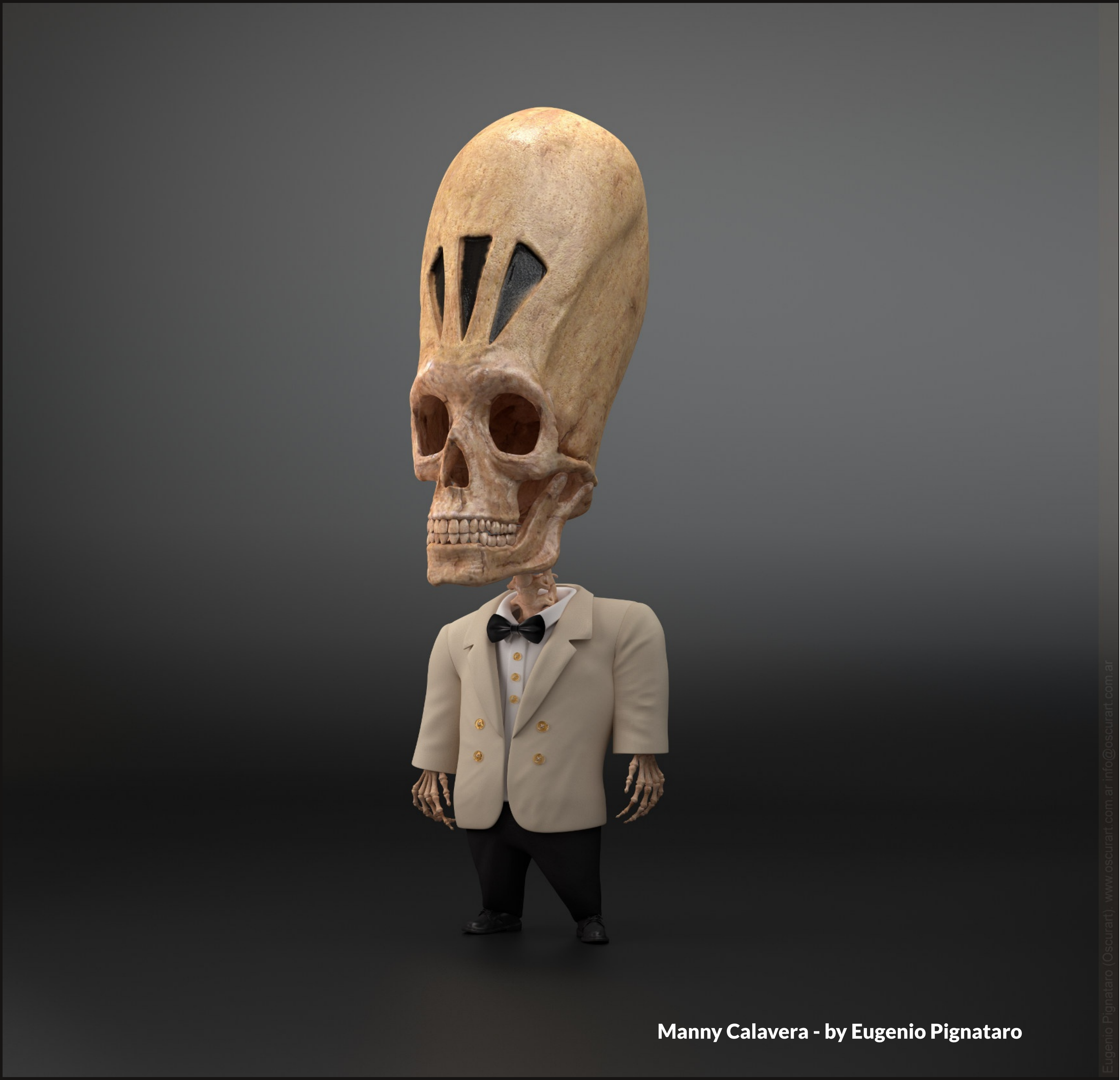
GALLERIA

Blender artworks from the blenderheads

Selena - by Marco Lorenzetti

GALLERIA

Blender artworks from the blenderheads


Eugenio Pignataro (Oscurart) www.oscurart.com.ar info@oscurart.com.ar

Manny Calavera - by Eugenio Pignataro